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LITERATURE REVIEW

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Reflective practice in clinical psychology: Reflections from basic psychological science

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Abstract

Reflective practice has gained traction in clinical psychology largely to address the fact that practitioners must frequently "use their heads" when scientific data are not readily available. Despite their widespread adoption, reflective practice techniques are largely lacking in supportive outcome evidence. We contend that the reflective practice literature has remained largely disconnected from basic psychological science, especially work on the limitations of (a) introspection as a means of becoming aware of one's biases, (b) self-assessment, and (c) acquiring expertise from experience. To realize its potential, the reflective practice literature will need to forge closer connections with work on social cognition and debiasing, and to determine whether its techniques enhance patient outcomes and the validity of clinicians' judgments and predictions.

KEYWORDS

bias blind spot, cognitive biases, debiasing, Dunning–Kruger effect, introspection, reflective practice

1 | INTRODUCTION

"Know thyself." This ancient Greek maxim, inscribed on the temple of Apollo at Delphi and reiterated in various guises by Aeschylus, Socrates, and Plato, among other influential Greek scholars, reminds us that self-reflection and self-awareness have been valued as aspirations for at least two millennia (Pronin, 2009; Ryff & Singer, 2008). The value of self-knowledge can similarly be found in ancient Buddhist and Chinese writings, many of which identify self-reflection as the key to self-understanding.

In contemporary clinical psychology, as well as several fields and subfields it subsumes or with which it interfaces, such as neuropsychology, counseling psychology, social work, health psychology, educational psychology, and sport psychology, the importance of self-reflection is formalized in an overarching approach to professional inquiry and training termed *reflective practice* (Anderson, Knowles, & Gilbourne, 2004; Fisher, Chew, & Leow, 2015; Gates & Senediak, 2017; Lavender, 2003). Reflective practice gained traction in clinical psychology and allied mental health service professions in part to address a key pragmatic problem confronting the practitioner. When it comes to many routine, open-ended clinical decisions, such as what to say to a client in response to a given question or how to interpret a client's resistance to an intervention, scientific data can only take us so far; we need to rely on thoughtful reflection as well. As Meehl (1957) noted famously over six decades ago, when we have no formula at our disposal to guide our clinical decisions, we need to use our heads. We need to reflect on the present clinical situation in light of our past experiences, experiences of our colleagues, psychological theory, wisdom, and the like. In principle at least, reflective practice can assist us in this regard.

But to what extent is reflective practice consistent with basic psychological science? It is this largely neglected question on which we focus.

Public Health Significance

Reflective practice is an overarching approach to clinical training and supervision that has been widely adopted by many professional organizations and training programs in the United States and abroad. Nevertheless, the reflective practice literature has remained largely disconnected from well-replicated research in basic psychological science, including work on humans' thinking capacities. To realize the potential of reflective practice, scholars will first need to conduct research on whether its techniques enhance patient outcomes or the validity of practitioners' clinical judgments and predictions, and to draw on the growing literature on debiasing methods.

2 | REFLECTIVE PRACTICE: HISTORICAL ANTECEDENTS

Reflective practice traces its roots largely to the writings of several educational theorists. Dewey (1933) formally introduced the idea of reflective practice, asserting that "reflective thinking is closely related to critical thinking; it is the turning over of a subject in the mind and giving it serious and consecutive consideration" (p. 3). He conceptualized reflective thinking as a process lying between recognition of a problem and its solution. According to him, it comprises of five stages: suggestions for a solution; clarification of the essence of the problem; the generation of hypotheses; comparison of these hypotheses; and testing the selected hypothesis by imaginative action. Although Dewey viewed reflective practice as a rational activity, he believed that reflection involved the whole psyche, including emotions.

Schön (1983) later distinguished *reflection-in-action* from *reflection-on-action*. According to him, reflection-in-action involves pondering in the "midst of action," also known as "thinking on your feet" (Schön, 1983, p. 26). In contrast, reflection-on-action involves thinking retrospectively about the situation as means of understanding what happened in light of experience. This latter process, which has substantially shaped conceptions of reflective practice in clinical psychology, requires one to consciously return to the experience to reevaluate and decide what one might have done differently. Boud, Keogh, and Walker (1985) elaborated on the importance of reflection for learning by arguing that, "reflection in the context of learning is a generic term for those intellectual and affective strategies in which individuals engage to explore their experiences in order to lead to a new understanding and appreciation" (p. 19). Subsequent authors built on these ideas in conceptualizing reflective practice; for example, Paul (1992) posited that "it is the art of thinking about your thinking while you are thinking in order to make your thinking better, more clear, more accurate more defensible" (p. 11).

To more explicitly guide the process of reflective practice, other authors (e.g., Johns, 1994; Kolb, 1984) have proposed various multistage "cycles" of reflective practice, some of which have been recommended for use in psychological training (Anderson et al., 2004; Cooper & Wieckowski, 2017; Sheikh, Milne, & MacGregor, 2007). Gibbs (1988) advanced an influential six-stage process of reflective practice comprising of (a) a description of the clinical interaction; (b) examination of one's thoughts and feelings; (c) evaluation of what went right and what went wrong; (d) analysis of the interaction; (e) conclusions, including what one might have done differently; and (f) a formulation of an action plan for what to do in similar clinical interactions. Central to Gibb's model is the assumption that trainees and professionals can learn from their positive and negative clinical experiences by reflecting on them and that such feedback can benefit their performance in related situations.

3 | REFLECTIVE PRACTICE: THE CONTEMPORARY LANDSCAPE

Although the language and theorizing of reflective practice have permeated much of the psychological literature, the concept of reflective practice is not easily defined, as its core features and boundaries often vary across scholars (Jarvis, 1992; Mackintosh, 1998; Mann, Gordon, & MacLeod, 2009; Mann & Walsh, 2013). Still, as described by one author team, "the required learning outcomes [of reflective practice] for trainees currently include the ability to demonstrate self-awareness and to work as a reflective practitioner as well as to think critically, reflectively and evaluatively" (Stedmon, Mitchell, Johnstone, & Staite, 2003, p. 30). As another author team observed, the aim of reflective practice is to teach psychologists to "become curious and critical of their work" (Gates & Senediak, 2017, p. 193). These goals have been echoed by numerous authors in the reflective practice literature (e.g., Anderson et al., 2004; Lavender, 2003). Reflective practice should not be confused with deliberate practice, which entails purposeful repetition on a circumscribed task (e.g., playing the piano, mastering a computer language) conjoined with immediate feedback (including errors) on one's performance (Ericsson, 2006).

Consistent with the tenets of reflective practice, these goals are commonly achieved via structured curricular activities undertaken by psychology trainees. Reflective practice can occur in multiple ways, including thinking, talking to supervisors and peers, and writing. In many cases, psychology training programs ask trainees to engage in self-reflection by completing log-books, personal journals, or diaries, or by performing detailed clinical observations accompanied by interpretations of their clinical experiences (Cooper & Wieckowski, 2017; Ferreira, Basseches, & Vasco, 2017; Gates & Senediak, 2017). Such activities vary somewhat across training programs, but most commonly include answering questions that ask trainees to reflect on their cognitive and affective reactions to patients, to consider why they made certain clinical decisions, to ask themselves what alternative courses of action they might have pursued, to evaluate what they did well and what they did poorly, and how they might modify their clinical practices in light of these judgments. In all cases, reflective practice models presume that this feedback can enhance practitioners' capacities to think critically about their everyday work and ideally, allow them to become more discerning and effective clinicians.

A representative sampling of reflective practice questions drawn from exercises in the published literature and other sources illustrates these themes:

> What have I learnt from the experience?… What did others think that I should learn?… How can I use what I have learnt in professional practice?… What happened when I used what I learnt in professional practice? (Alsop, 1995, p. 338)

> What did you think or feel about the issue?… What did you learn?… How will you apply what you have learnt to your clinical practice?…How have your beliefs been affected? (Cushway & Gatherer, 2003, p. 9).

> Why are things done this way? …How could I do it differently? (Carroll, 2009, p. 43)

> What am I feeling? …How do I understand those feelings then and now? …What is the emotional flavour of the interaction? …Was it similar to or different from my usual experience? (Senediak, 2013, p. 343).

> What do you think you have done well?…What do you think you need to do differently?…How might you use opportunities for self-reflection to assist your learning and thinking outside of the supervision session? (Gates & Senediak, 2017, p. 196).

> What were my thoughts, assumptions, and expectations about the interaction at the time? (Cooper & Wieckowski, 2017, p. 255).

> What were my thoughts, assumptions and expectations about the interaction at that time? … What are they now? …What past professional or personal experiences affect my understanding (Gravier, Burney, & Radermacher, 2019).

Reflective practice has been proposed as a foundational competency of professional and ethical practice by the American Psychological Association (APA) as well as by many authors (France et al., 2008; Kaslow et al., 2009; Rodolfa et al., 2005; Stucky, Bush, & Donders, 2010). One competency model in psychology, known as the cube model (Fouad et al., 2009; Rodolfa et al., 2005), identifies 15 professional competencies, including foundational competencies (i.e., the knowledge, skills, attitudes, and values that serve as the basis on which a psychologist practices). One such competency is reflective practice, defined as "practice conducted with personal and professional self-awareness and reflection; with awareness of competencies; with appropriate self-care" (Fouad et al., 2009, p. S10).

Some prominent psychology bodies have characterized reflective practice as an important, and perhaps even necessary, condition for acquiring clinical expertise. For example, the British Psychological Society (2019) asserted that "programmes should ensure that trainees monitor and review their own progress and develop skills in self-reflection and critical reflection on practice" (p. 40). In addition, many major universities in the United Kingdom subscribe to a "reflective scientist–practitioner" model in training clinical psychologists (see also Hanley & Amos, 2017) in which self-reflection is accorded roughly equal priority to scientific evidence in training. According to Youngson (2009), this model is more in line (than the scientist–practitioner model) with phenomenological approaches to understanding experiences, and rests on an "acknowledgement that clinical practice illustrates the limitations of a purely scientific approach, revealing the complexities of real-life clinical practice" (Lyons, 2017, p. 11). In Australia, the Psychology Board of Australia (2017) holds that "reflective practice is an essential component of skill and professional development by psychologists throughout their career in psychology. It involves a critical reflection on one's own practice…" (p. 17).

Furthermore, reflective practice has increasingly been recognized as a valued goal, if not a formal core clinical competency, in numerous clinical psychology and clinical neuropsychology graduate programs in the United States, the United Kingdom, Australia, New Zealand, South Africa,

among other nations (Cooper & Wieckowski, 2017; Gates & Senediak, 2017; Knoetze & McCulloch, 2017). Numerous American doctoral (Ph.D. and Psy.D.) programs in clinical, counseling, and school psychology, as well as clinical internship programs, explicitly mention reflective practice as training goals on their web sites. We refer readers to Table 1 for a partial summary of how reflective practice is regarded by professional organizations in the United States, Canada, the United Kingdom, Australia, New Zealand, and South Africa.

Over the past few decades, numerous authors have advanced claims regarding the effectiveness of reflective practices in clinical psychology and allied disciplines. A selective sampling of quotations follows:

> It leads to greater self-awareness, to development of new knowledge about professional practice, and to a broader understanding of the problems which confront practitioners (Osterman, 1990, p. 134).

> Expertise arises from constant examination and analysis of performance through active purposeful reflection (Andrews, 1996, p. 513).

> Reflection allows practitioners to examine their own clinical reasoning strategies (Epstein & Hundert, 2002, p. 228).

> All of the reflection methods previously described can be used to feed the process of increasing our awareness of self and providing opportunities for growth (Lavender, 2003, p. 15).

> We suggest that reflective practice offers sports psychologists an approach to making sense of their experiences, managing the self, and ultimately increasing personal and professional effectiveness (Anderson et al., 2004, p. 199).

> By encouraging reflectivity the therapist can further refine clinical skills of observation, listening and questioning thus enhancing clinical practice (Senediak, 2013, p. 339).

> Reflective practice was useful for participants to better understand themselves; work more closely with their clients; manage challenging clinical situations… (Fisher et al., 2015, p. 741).

> Supervisees who develop the capacity to be reflective upon their work with clients are thought to improve their clinical wisdom, professional judgement, and enhance ethical reasoning (Gates & Senediak, 2017, p. 163).

4 | REFLECTING ON REFLECTIVE PRACTICE

Few scholars would dispute the contention that "self-awareness," as well as the ability to "think critically, reflectively, and evaluatively" (Stedmon et al., 2003, p. 30), is laudable aspirations for all psychologists and mental health professionals at large, including clinical psychology practitioners, researchers, and instructors. Furthermore, large bodies of research in social cognition demonstrate that reflective abilities, as operationalized by high scores on such measures as the widely used cognitive reflection test (CRT; Frederick, 2005), are tied to lower susceptibility to cognitive biases, such as the regression fallacy and base rate neglect (Toplak, West, & Stanovich, 2011), even after controlling for scores on general intelligence measures. All things being equal, more reflective practitioners seem likely to be superior critical thinkers and ideally, more effective clinicians.[1]

At the same time, it is far from evident that reflective practice, as presently conceptualized, operationalized, and implemented in the substantial majority of clinical psychology graduate programs and professional psychology organizations, is living up to its ambitious goals. It is critical not to confuse reflective practice as an *outcome* with reflective practice as a *process*. That is, although virtually all of us can concur that producing reflective practitioners is a worthy goal of clinical training, it is by no means guaranteed that most reflective practice training activities, such as asking practitioners to consider how certain patients made them feel, asking them why they made certain clinical decisions, or asking them how they can use this information to improve their clinical judgments and decisions, will yield more reflective practitioners.

As an analogy, we can all agree that ceteris paribus, more deliberative automobile drivers are probably better automobile drivers. But it is hardly *a fait accompli* that asking experienced drivers and drivers-in-training to ponder their emotional and cognitive reactions to their driving experiences, or asking them to consider what they have learned from their mistakes will improve their everyday driving habits. It is even possible that doing so could harm their driving safety by instilling in them a sense of unearned self-confidence on the road. To be sure, conducting effective psychotherapy is enormously more complicated than driving a car, but the analogy still holds: Merely because individuals who have achieved reflective skills in domain X exhibit better outcomes does not imply that teaching individuals these reflective skills will improve

TABLE 1 Professional psychology organizations' conceptualizations of reflective practice across countries

	United States	Canada	United Kingdom	Ireland	Australia	New Zealand	South Africa
Professional body	American Psychological Association (APA)	Canadian Psychological Association (CPA)	British Psychological Society (BPS)	The Psychological Society of Ireland	Psychology Board of Australia	New Zealand Psychologists Board	Health Professions Council of South Africa (HPCSA)
Views on reflective practice	APA provides competency benchmarks, a set of core competencies for professional psychology that students should develop during their training. APA includes reflective practice as one of the competency benchmarks (American Psychological Association, 2012a, p. 4; American Psychological Association, 2012b, p. 17)	In the Canadian Code of Ethics, the CPA states that clinical psychologists should "engage in self-reflection regarding how their own values, attitudes, experiences, and social context (e.g., culture, ethnicity, color, religion, sex, gender, sexual orientation, physical and mental abilities, age, socio-economic status) influence their actions, interpretations, choices, and recommendations". (Canadian Psychological Association, 2017, p. 18)	The Health and Care Professions Council requires reflection in the record of continued professional development to retain continued registration (British Psychological Society, 2019, p. 11). In addition, the BPS states that reflective practice is promoted through supervision and monitoring progress throughout clinical training (British Psychological Society, 2019), and includes the ability to work as a "reflective practitioner " as one of nine core competencies (British Psychological Society, 2019, p. 16)	The Psychological Society of Ireland notes that each course should be based on the reflective/scientist practitioner model, and that clinical psychology training courses should "ensure trainees are cognizant of the importance of self-awareness and the need to appraise and reflect on their own practice" (The Psychological Society of Ireland, 2009, p. 4)	The Psychology Board of Australia (2019) states that clinical psychologists must have the following specialist skills and capabilities, including "the capacity for reflective practice, including consideration of personality and preferences of others and the self, and how these influence communication and interpersonal relationships" (p. 15). The Psychology Board of Australia (2017) considers reflective practice an essential component of skill and professional development by psychologists throughout their career in psychology, and mandates that students maintain a logbook to record activities and a journal for written reflection throughout their internship	The New Zealand Psychologists Board considers reflective practice to be one of the core competencies for practicing psychologists. The board states that psychologists must be able to demonstrate "accurate reflection on and evaluation of their own practice (skills, knowledge, and bias)" (New Zealand Psychologists Board, 2018, p. 12)	The HPCSA requires practitioners to create a learning portfolio as part of continuing professional development, and as part of the portfolio they are required to write a "structured reflection on their engagement in the identified learning strategies, and the subsequent application of their new learning in practice" (HPCSA, n.d. p. 2). The HPCSA states that the learning portfolio is meant to "promote professional growth and the ongoing exercise of having to organize and share one's learning assists the practitioner to gain a deeper understanding of themselves as practitioners" (HPCSA, n.d., p. 2)

(Continues)

TABLE 1 (Continued)

	United States	Canada	United Kingdom	Ireland	Australia	New Zealand	South Africa
Reflective practice required	No	No	Yes	Yes	Yes	Yes	Yes
Reflective practice recommended	Yes	Yes	Yes	Yes	Yes	Yes	Yes

their performance in domain X. Although research in health education suggests that medical professionals who report that they frequently engage in reflective practice activities display superior learning outcomes relative to other professionals (Fragkos, 2016), such evidence is strictly correlational and does not bear on the potential effectiveness of teaching reflective practice skills.

Rendering the reflective practice literature challenging to synthesize and evaluate, this body of work is widely dispersed across several traditionally separate fields, including education, nursing, medicine, philosophy, psychology, social work, education, sports, and business. Much of this writing has largely accepted the key tenets of reflective practice (e.g., Howatson-Jones, 2016; Redmond, 2017). Even so, several scholars in such disciplines, such as nursing (Mackintosh, 1998; Newell, 1992b) and medicine (Ng, Kinsella, Friesen, & Hodges, 2015), have raised pointed concerns regarding the conceptual and evidentiary bases of reflective practice. For example, following an extensive review of the reflective practice literature in medical education, Mann et al. (2009) concluded that the answers to such questions as whether reflective practice (a) can be effectively taught, (b) enhances clinician self-reflection and self-assessment, (c) improves patient outcomes, and (d) engenders negative effects among clinicians, such as distress or the illusion of understanding (see also Fernbach, Rogers, Fox, & Sloman, 2013), remain largely or entirely unanswered. In the decade since Mann et al.'s review appeared in print, the answers to these questions are no more clear. The same sizeable gaps in knowledge extend to clinical psychology and allied fields. For example, most psychological studies examining the impact of reflective practice on clinicians or on patient outcomes consist of descriptive and qualitative surveys of practitioners' self-reported reactions to reflective practice training activities, thereby precluding strong causal conclusions. Furthermore, these investigations are often based on small or at best modest samples (e.g., Binks, Jones, & Knight, 2013; Fisher et al., 2015; Fragkos, 2016; Knight, Sperlinger, & Maltby, 2010; Knoetze & McCulloch, 2017; Lyons, Mason, Nutt, & Keville, 2019; Marsh, 2014). To our knowledge, no published studies in clinical psychology have examined whether reflective practice activities improve patient outcomes or the validity of clinicians' assessment-related judgments or predictions.

As important as the applied questions raised by Mann et al. (2009) are, we address a fundamentally different question in this article: Is reflective practice consistent with findings derived from basic psychological science, such as social cognition? Surprisingly, few authors (see Newell, 1992b, for an exception) have considered this question. If reflective practice as presently conceptualized and operationalized is inconsistent with humans' cognitive capacities, such as their ability to reflect accurately on their motives and behavior,

as well as to benefit from self-assessment and to learn from experience, it may be unlikely to be successful.

At the risk of presenting readers with a spoiler alert, we argue that reflective practice in clinical psychology and allied fields has long been largely disconnected from substantial bodies of well-replicated research in basic psychological science. As Stanovich (2017) noted, violations of the *connectivity principle*, which he defined as the extent to which a scientific assertion establishes contact with established research findings, pose a serious threat to psychological science. Lacking solid grounding in basic psychological science, a didactic or intervention technique may be erected on an edifice of erroneous or at least ill-supported assumptions. We contend that this state of affairs holds for reflective practice. Nevertheless, we also conclude that reflective practice in some form may ultimately hold promise as a core skill set among clinical psychologists and clinical psychologists-in-training, but only if it attends closely to the broader literatures in psychological science on introspection, reflection, self-assessment, and difficulties in learning from experience.

5 | REFLECTIVE PRACTICE: THE BASIC SCIENCE GAP

With rare exceptions (e.g., Newell, 1992a), the reflective practice literature has remained divorced from several key domains of basic psychological science. We examine three such domains here, with a particular eye to their implications for clinical psychology.

5.1 | Introspection and bias blind spot

One of the core assumptions of reflective practice is that reflection enables individuals to overcome their own biases and intellectual liabilities more generally. For example, under the heading of "Reflective Practice," the British Psychological Society (2017) discussed several cognitive biases and heuristics relevant to clinical practice, including confirmation bias and the availability heuristic, the tendency to gauge the likelihood of a phenomenon by the ease with which it comes to mind (Tversky & Kahneman, 1973). Under this heading, they asserted that:

> The literature is generally pessimistic about the ability of practitioners to overcome some of these biases, considering them to be inherent in human thinking patterns. By being aware of and acknowledging them, it can be possible to manage their influence. For example, biases can be levelled out by presenting information in different ways, by engaging the perspectives of people with different experiences and expectations… (p. 11).

Nevertheless, overcoming these biases by means of reflective practice may be more easily said than done. One challenge is that we tend to possess limited direct access to our higher-order cognitive processes, including access to the proximal causes of our behaviors (Nisbett & Wilson, 1977; but see Smith & Miller, 1978). As a consequence, reflective practice questions that ask trainees to consider how their beliefs were affected by various clinical experiences (e.g., Cushway & Gatherer, 2003) are likely to reflect their implicit narratives regarding belief change rather than the actual causes of such change (see Ross, 1989).

Furthermore, research by Pronin, Gilovich, and Ross (2004) and Pronin, Lin, and Ross (2002) demonstrates that most of us display a *bias blind spot*, that is, a propensity to perceive others, but not ourselves, as susceptible to biases, including confirmation bias, the fundamental attribution error (the tendency to overweight dispositional relative to situational influences on other individuals' behavior), and the halo effect (the tendency to allow positive evaluations of an individual in one domain to "spill over" to largely or entirely unrelated domains). Because of bias blind spot, we tend to view ourselves and in some cases, individuals in our favored in-groups, as largely immune to cognitive errors, but others as prone to such errors. To a substantial extent, we are not merely blind (biased), but blind to our blindness.

Perhaps ironically, one key source of bias blind spot appears to be the *introspection illusion*, whereby individuals erroneously believe that their introspections afford valuable insight into their own biases (Hansen & Pronin, 2012; Pronin, 2007). By definition, most biases are implicit, that is, inaccessible to awareness. Research suggests that when individuals attempt to detect bias in themselves, they typically look inward for evidence of such bias. Failing to detect it, they conclude that they are largely or entirely unbiased (Pronin & Kugler, 2007). Although correlational, this work raises the possibility that introspection exacerbates bias blind spot, as it may fuel the impression that our biases are nowhere to be found. The more we turn inward and seek evidence of our own biases, the more persuaded we become that we are free of them.

As put eloquently by Hansen and Pronin (2012):

> Unfortunately, looking inward to attain self-knowledge is more difficult than it seems. The lenses through which we look are far from objective, and they can distort, cloud, and color what we see in ways that, for example, sometimes present us with overly positive self-views and other times present us with overly negative ones…The problem goes deeper than such

> distortions: Self-reflection only reveals those things—memories, emotions, beliefs, motives—that occupy our current conscious experience. By focusing on what we find when we look inward, we blind ourselves to those things that are inaccessible via introspection (p. 345).

Still, the belief that introspection alleviates biases, which is a core presumption of many or most models of reflective practice (e.g., British Psychological Society, 2017), may be deeply entrenched in at least some domains of professional psychology. In four studies, substantial majorities of forensic practitioners endorsed introspection as a means of overcoming bias despite its evidentiary foundation being less than compelling for this purpose (MacLean, Neal, Morgan, & Murrie, 2019; Neal & Brodsky, 2016; Zapf, Kukucka, Kassin, & Dror, 2018; Zappala, Reed, Beltrani, Zapf, & Otto, 2018). For example, in a survey of 120 licensed psychologists with forensic interests, MacLean et al. (2019) reported that 93% endorsed introspection as a debiasing strategy and 30% reported using introspection as a debiasing strategy in their practice in response to an open-ended question. Similarly, in a survey of 80 forensic mental health practitioners, Zappala et al. (2018) found that 79% endorsed "introspection and self-reflection" (p. 8) as a debiasing strategy. We are unaware, however, of comparable data among clinical psychologists at large.

It is unclear whether reflective practice can mitigate against bias blind spot. Nevertheless, in an unpublished study, Felmban (2015) found that asking participants to reflect on their bias blind spots by (a) considering its impact on their thinking and (b) generating an example of their own bias blind spot did not diminish the magnitude of bias blind spot in either cultural group. It remains to be seen whether more intensive or sustained efforts to promote reflection would be more effective in diminishing the magnitude of bias blind spot.

5.2 | Self-assessment and the Dunning–Kruger effect

An implicit assumption of reflective practice is that by considering their strengths and weaknesses, as well as what they have done well and done poorly, trainees and current practitioners can improve their clinical performance (Hobbs, 2007; Somerville & Keeling, 2004). That is, reflective practice strives to enhance individuals' self-assessment accuracy.

For example, in the context of clinical neuropsychology supervision, Gates and Senediak (2017) recommended that supervisees ask themselves the following questions, among others: "what do you think you have done well?" "what do you think you need to do differently?" and "what do you need to do more or less of to develop functional competency in this area?" (p. 195). Such questions presume that trainees possess at least a rudimentary capacity to accurately assess and monitor their clinical skills, as well as to identify domains in need of remediation. Similarly, in describing reflective practice, one web site highlights the importance of considering clinical failures and successes: "emphasis is often placed on reflection upon situations that did not go well, but it is important to reflect on situations where a situation went very well. This provides a more holistic picture of your practice, including strengths as well as weaknesses" (Services for Australian Rural & Remote Allied Health, 2019).

In this context, a potentially crucial impediment to reflective practice that appears to have gone almost entirely unmentioned in this literature (but see Johnson et al., 2014; Melrose, 2017, for exceptions) is that many or most individuals are poor at self-assessment (Dunning, Heath, & Suls, 2004). As Dunning et al. (2004) observed:

> self-directed learning requires the ability to recognize the areas where further work is most needed - where one's shortcomings are the most severe and in need of remediation. This review, however, suggests that one cannot simply assume that individuals, left to their own devices, will be able to spot their own shortcomings (p. 99).

Well-replicated bodies of evidence demonstrate that individuals who possess low levels of skills and knowledge tend to overestimate their skills and knowledge, a phenomenon dubbed the *Dunning–Kruger effect* in honor of the two psychologists who brought it to the field's attention (Dunning, 2011; Knapp, Gottlieb, & Handelsman, 2017). In one demonstration of this effect, undergraduates who performed in the bottom fourth of an examination distribution placed themselves in the top half of this distribution (Dunning, Johnson, Ehrlinger, & Kruger, 2003). In another study, community individuals who received the lowest score (0) on a five-item measure of political knowledge (e.g., "how many years does a U.S. Senator serve?") placed themselves in the upper 20th percentile (Anson, 2018). In the psychotherapy domain, the results of one small ($N = 22$) study of cognitive therapists revealed that practitioners displaying the most positive self-ratings of competence were rated the least competent by independent judges (Brosan, Reynolds, & Moore, 2007; see also Ziem & Hoyer, 2019).

More broadly, most individuals tend to perceive themselves as better than the average person (the "better-than-average effect;" Alicke & Govorun, 2005) across a variety of knowledge and skill domains. In one study, 94% of university professors reported that their work is superior to that of their colleagues (Cross, 1977). In the domain of clinical practice, some authors have referred to this phenomenon as "professional narcissism" (Knapp et al., 2017; Younggren, 2007). In

a survey of 129 private practice U.S. psychotherapists, the average mental health practitioner rated him or herself at the 80th percentile of clinical abilities, and 25% rated themselves at or above the 90th percentile (Walfish, McAlister, O'Donnell, & Lambert, 2012). *None* rated themselves below average in their skill level. Perhaps even more worrisome, another study revealed that therapists markedly underestimated the rates of patient deterioration in their caseloads and markedly (by a factor of more than two) overestimated the rates of patient improvement (Hannan et al., 2005). In still another study, in this case of 195 therapists from the United Kingdom, the average practitioner rated him or herself at the 65.7th percentile (Parker & Waller, 2015). More broadly, data on medical professionals suggest that the least competent performers tend to be the most likely to overestimate their skills (Johnson, Barnett, Elman, Forrest, & Kaslow, 2012, 2013).

Although the explanation for the Dunning–Kruger effect is controversial (e.g., Krueger & Mueller, 2002), one promising candidate is a meta-cognitive deficit: Chronic underperformers do not know what they do not know (Kruger & Dunning, 1999; but see McIntosh, Fowler, Lyu, & Della Sala, 2019). As consequence, they suffer from a "double burden of incompetence" whereby they lack sufficient insight to allow them to become aware of their knowledge deficits. As one author asked rhetorically, "how can I know what I don't know when I don't know what I don't know?" (Keil, 2001; see also Croskerry & Norman, 2008). In the case of clinical work, one essential skill is the capacity to reflect on one's activities; yet because of the Dunning–Kruger effect, those practitioners who are the least adept at reflection may often be among the most likely to perceive themselves as skilled in this regard.

More generally, the association between confidence in one's clinical capacities and clinical competence, including accuracy in one's clinical judgments and predictions, tends to be weak (Garb, 1989; see also Dawson, 2018). A meta-analysis of 36 studies revealed only a modest ($r = .15$) association between confidence and accuracy (Miller, Spengler, & Spengler, 2015) and accuracy across a variety of assessment tasks, including forecasting of violence risk and prediction of treatment outcome. Hence, clinicians' confidence in their clinical judgments and predictions is poorly calibrated with their success rates. Furthermore, inexperienced clinicians tend to be the most poorly calibrated (Miller et al., 2015).

The Dunning–Kruger effect and broader deficits in individuals' self-assessment capacities (Dunning et al., 2004), including the better-than-average effect, bear potentially important implications for reflective practice. Specifically, many practitioners and even some beginning trainees are likely to overestimate their clinical skill levels and underestimate their clinical weaknesses. Hence, when asked to reflect on what they did and did not do well (e.g., Gates & Senediak, 2017), they may fail to detect knowledge and skill gaps in need of improvement. Ironically, the very trainees and practitioners who would presumably be the most likely to benefit from reflective practice, namely those who are the least skilled and knowledgeable, may be the most overconfident in their capacities. Such overconfidence, in turn, may be linked to lower receptivity to negative feedback from supervisors or colleagues (see Sheldon, Dunning, & Ames, 2014). Research on the Dunning–Kruger effect raises the possibility that some reflective practice exercises might prove useful for trainees with high levels of clinical skills and knowledge, who are not prone to overestimating their abilities (see Dunning et al., 2004). Nevertheless, this moderation hypothesis has yet to be subjected to an empirical test.

5.3 | Challenges in moving from experience to expertise

An allied body of literature points to another largely or entirely overlooked challenge to the effectiveness of reflective practice, namely research demonstrating that we tend to acquire intuitive expertise, including clinical expertise, only under highly constrained conditions (Dawes, 1994; Shanteau, 2002). Put somewhat differently, we must be careful not to confuse experience with expertise, as one can repeatedly commit the same errors over and over again, thereby failing to benefit from extended feedback (McKnight & Sechrest, 2004).

As a consequence, the association between clinical experience, as operationalized by either the amount of time invested in clinical cases or the total number of clinical cases, and psychotherapy outcomes tends to be weak or negligible (Goldberg et al., 2016; Tracey, Wampold, Lichtenberg, & Goodyear, 2014). Specifically, we generally accrue expertise with experience only in *high-validity environments* (Kahneman & Klein, 2009; MacDonald & Mellor-Clark, 2015), namely those in which there are predictable associations between cues in the environment and outcomes, and in which these cues are readily detectable by learners. Some vocations and avocations, such as firefighting, diagnostic radiology, chess-playing, archery, and computer programming, tend to be high-validity environments. Here, most failures and successes are clear-cut and follow unambiguously and promptly from individuals' preceding actions. Hence, they can often benefit from experience.

In contrast, most clinical practice settings are low-validity environments (Kahneman & Klein, 2009; Shanteau & Weiss, 2014; Tracey et al., 2014). Consider psychotherapy—feedback regarding whether a patient has improved is often ambiguous. For example, a patient with narcissistic personality disorder features may appear to be less self-centered following 2 months of treatment, but perhaps he is merely better at disguising his narcissism, or perhaps he has become

more depressed, producing a temporary masking of his narcissism. Furthermore, even when patient improvements are evident, it is often difficult to attribute them conclusively to one's ministrations as opposed to a host of causes of spurious therapeutic effectiveness, such as regression to the mean, placebo effects, demand characteristics, positive life events transpiring outside of the therapy session, or simultaneously administered formal or informal interventions (Lilienfeld, Ritschel, Lynn, Cautin, & Latzman, 2014). This is especially the case given that patient improvements following certain therapeutic interventions may not become apparent until weeks after they are administered, rendering it challenging to link these improvements temporally or causally to the interventions. Such considerations are not grounds for therapeutic nihilism, because practitioners who rely on empirically supported methods (Chambless & Ollendick, 2001) in conjunction with nonspecific skills (e.g., empathy, rapport-building) can be reasonably certain that they are helping many or most of their clients. At the same time, these factors typically make it challenging for psychotherapists to learn from experience (Tracey et al., 2004).

Similarly, the typical clinical neuropsychology setting is a low-validity environment (Wedding & Faust, 1989). Feedback regarding the accuracy of one's clinical judgments and predictions, such as whether the patient displays marked executive functioning deficits or would benefit from a specific cognitive rehabilitation plan, is frequently unclear or inconsistent, and practitioners rarely learn when they are wrong.

Indeed, many clinical settings may be "wicked environments," those in which feedback is inaccurate or misleading (Hogarth, Lejarraga, & Soyer, 2015). For example, premature dropout from psychotherapy tends to be nonrandom, as patients who are displeased with treatment are more likely to terminate early compared with other patients (Swift & Greenberg, 2014). As a consequence, therapists' caseloads may become biased toward the inclusion of patients who are satisfied with treatment. Ironically, this biasing effect may be most pronounced for therapists with the highest dropout rates, who may be the least effective therapists.

Potentially exacerbating these challenges are a host of cognitive biases that can interfere with learning from experience (Wedding & Faust, 1989). Because of confirmation bias, which is most pronounced when information is ambiguous (Kassin, Dror, & Kukucka, 2013), practitioners may selectively interpret equivocal patient outcome data in accord with their pre-existing beliefs, including the belief that their intervention with a given patient is effective. In addition, because of hindsight bias (Fischhoff, 1975), we tend to perceive known outcomes as more foreseeable and inevitable than we would have in advance. Hence, even if we receive feedback suggesting that one of our clinical predictions was incorrect (e.g., that a patient was unlikely to attempt suicide), we may persuade ourselves that we "knew it all along." Hindsight bias may be a particular obstacle to reflective practice given that it can distort our memory of events in accord with our expectations (Stahlberg & Maass, 1997; see also Newell, 1992a), raising "questions about one's use of reflection: whether it reflects the incident as it actually happened or the biased version of the event" (Jones, 1995, p. 787).

Adding to the challenges posed by cognitive biases is the broader difficulty that many people experience in benefiting from feedback (see Kluger & DeNisi, 1998, for a review), especially failure feedback. Research suggests that when individuals discover that they are mistaken, they frequently feel threatened and "tune out," resulting in a diminished ability to learn from errors (Eskreis-Winkler & Fishbach, 2019).

In aggregate, these considerations appear to have received scant attention in the reflective practice literature. A core assumption of reflective practice is that this approach "enables experiential learning (learning-by-doing) in which students draw on their experiences to continually learn and reapply their learning to a new experience" (Cooper & Wieckowski, 2017, p. 253). For example, most reflective practice techniques are premised implicitly or explicitly on the cyclical models of Gibbs (1988) and other theorists, which posit that we can retrospectively appraise clinical situations to discover what we could have done better and formulate corrective action plans accordingly. Nevertheless, to the extent that individuals typically fail to develop expertise in the wake of feedback in low-validity environments (Tracey et al., 2014), it is unlikely that merely reflecting on their clinical experiences, including their errors, will circumvent this stumbling block to learning. To the contrary, to the degree that such reflection is tainted by ubiquitous self-serving biases, it could impede the process of learning from experience given that trainees and practitioners may filter out or tendentiously reinterpret ambiguous clinical data in ways that bolster their pre-existing views. In principle, astute clinical supervisors may be able to detect such biases in their trainees, although the extent to which they are able to do so is unknown.

6 | CONCLUSIONS AND FUTURE DIRECTIONS

In raising questions regarding the scientific foundations of reflective practice in clinical psychology and allied mental health disciplines, we should make clear that we wholeheartedly embrace the goal of producing more reflective practitioners. Nevertheless, based on the substantial and well-replicated bodies of basic psychological science we have reviewed, it is not evident that reflective practice, as commonly operationalized and carried out in psychology training programs, is likely to succeed in this aim.

Fueling our concerns is the marked dearth of evidence that reflective practice techniques yield more reflective practitioners, better patient outcomes, or more accurate clinical judgments and predictions (Mann et al., 2009). Although reflective practice exercises appear to be well-received by most psychology trainees (Cooper & Wieckowski, 2017; Knight et al., 2010), evidence of satisfaction should not be confused with evidence of effectiveness. In fairness, the gap here is more one of absence of evidence than of evidence of absence given the lack of controlled trials examining the impact of reflective practice techniques on clinically relevant outcomes. At the same time, such absence is concerning given the widespread uptake of reflective practice activities by psychology graduate programs.

Moreover, in view of the whole-scale absence of outcome data on reflective practice procedures, it would be premature to conclude that such procedures are invariably innocuous. Given that introspection appears to be one key source of bias blind spot (Pronin, 2009), the possibility that some reflective practice techniques may, paradoxically, decrease awareness of one's bias while boosting self-confidence in one's objectivity should not be cavalierly dismissed. We are not alone in raising concerns regarding the potential negative effects of reflective practice techniques. In the medical education literature, de la Croix and Veen (2018) warned of the hazards of creating "reflective zombies" (p. 394), students who learn to go through the motions of reflecting on their clinical experiences in a checklist fashion without processing them deeply. Admittedly, this criticism is directed more to a misuse of reflective practice than to its proper use. Nevertheless, in conjunction with broader cognitive psychology research on how subjective perceptions of fluency and familiarity can contribute to illusions of competence (Bjork, Dunlosky, & Kornell, 2013), it reminds us that we should not conflate trainees' perceptions of skill acquisition with genuine skill acquisition.

So where does this leave us in terms of future directions for reflective practice? Even as basic psychological science highlights many of the likely shortcomings of reflective practice, it underscores the importance of not throwing out the proverbial baby with the bathwater. Hence, rather than dispensing entirely with reflective practice broadly construed, we recommend aiming to supplement or replace it with reflective methods that boast a firmer evidentiary foundation. Indeed, psychological science offers grounds for cautious optimism regarding a substantially re-envisioned form of reflective practice, although what we might dub Reflective Practice 2.0 will require testing in systematic research.

The burgeoning literature on debiasing techniques is provisional and at times mixed (Lilienfeld, Ammirati, & Landfield, 2009; Morewedge et al., 2015). Such research can be challenging to conduct, in part because it requires extended follow-up of participants to ensure that the interventions "stick" over time. Nevertheless, debiasing research provides several fruitful clues for the development of reflective practice protocols that are more firmly grounded in basic science. For example, in several studies such techniques as "consider the opposite" or "consider the alternative," which encourage individuals to countenance hypotheses that differ from their own, have demonstrated promise in mitigating against confirmation bias (Croskerry, Singhal, & Mamede, 2013; Lord, Lepper, & Preston, 1984), although such methods have yet to be examined explicitly in the context of clinical practice. In this respect, reflective practice questions such as "how might I test out alternatives?" (e.g., Cooper & Wieckowski, 2017, p. 255), especially if accompanied by a thoroughgoing consideration of competing clinical hypotheses, would be worth investigating as potentially effective debiasing techniques. More broadly, the literature on debiasing methods suggests that slowing down and mobilizing System 2 cognition, that is, thinking that is analytic and deliberative (Kahneman, 2011; Stanovich & West, 2000), may buffer against certain cognitive biases (Croskerry et al., 2013). For example, in one study (Mamede et al., 2010), encouraging internal medicine physicians to reflect on the availability heuristic diminished the extent to which this heuristic biased their diagnostic decisions (specifically, the extent to which they were unduly swayed by exposure to recent cases with the same diagnosis). It seems likely that future research will identify additional debiasing methods that can inform empirically supported reflective practice endeavors.

Finally, we are inclined to agree with MacLean et al. (2019) that encouraging clinicians to adopt an "outsider perspective" (see Kahneman & Lovallo, 1993) and step back to examine their decision-making behaviors as relatively disinterested third-party observers is more likely to be productive as a debiasing method than is merely asking them to introspect on their thoughts and feelings. By doing so, they can partially avoid the introspection illusion and strive for a modicum of impartiality when reflecting on their strengths and weaknesses. Even here, however, the extent to which this approach yields overall improvements in clinical judgments and predictions necessitates further research.

In closing, we offer several recommendations for reflective practice research and theorizing: (a) forge closer connections with basic research on social cognition, learning, and clinical judgment/prediction; (b) conduct controlled trials of the effectiveness of reflective practice methods; (c) examine potential harmful effects of such methods; and (d) draw on the provisional but growing body of research on debiasing methods to inform the development of reflective practice techniques to be investigated in future work. With respect to (d), it may ultimately prove more important to ask, "which reflective practice methods are you using?" than "are you using reflective practice methods?" Furthermore, we urge greater circumspection and modesty in the use of reflective practice

methods in the contexts of clinical training and supervision, along with an explicit acknowledgment that such methods remain empirically unsupported as means of enhancing either reflectivity among practitioners or patient outcomes. Reflective practice emerged in clinical psychology and allied disciplines largely to fill an important gap, namely the question of how to operate in everyday clinical situations in which easy scientific answers are not readily available. Still, as a set of skills to be imparted to clinicians and clinicians in training, reflective practice can and should be informed by the best available psychological science.

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ENDNOTE

[1] To our knowledge, however, no correlational data exist on the question of whether the frequency of engagement in reflective practice activities among psychotherapists is tied to superior client outcomes.

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