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Beyond the Rhetoric of Evidence-Based Assessment: A Framework for Critical Thinking in Clinical Practice

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Abstract

Although the field of school psychology has made progress toward the use of tests and assessment practices with empirical support over the past 20 years, many school psychology practitioners still engage in what can be described as low-value value assessment practices that lack compelling scientific support potentially taking time and resources away from practices that have a demonstrated evidence-base. Why do school psychologists engage in questionable assessment and interpretive practices despite decades of discrediting scientific evidence? This article critically examines several plausible explanations for the perpetuation of low-value practices in school psychology assessment. It also underscores the importance of critical thinking when evaluating assessment and interpretation practices, and discusses practical recommendations to assist in advancing evidence-based assessment in school psychology training and practice as the field progresses well-into the 21st century.

Keywords: Scientific Decision-Making; Critical Thinking; Low-Value Practices; Profile Analysis; Assessment; Evidence-based Assessment

Impact Statement

Many school psychologists engage in assessment practices that lack compelling scientific support potentially taking time, resources, and energy away from more effective practices. This article critically reviews reasons why these questionable assessment practices persist long after discrediting scientific evidence has been aptly presented. Recommendations are offered to promote the use of *evidence-based* practices and discourage the use of assessment methods lacking compelling empirical support in training and clinical practice.

Beyond the Rhetoric of Evidence-Based Assessment: A Framework for Critical Thinking in Clinical Practice

Drawing on the interdisciplinary movement toward evidence-based practice (EBP), the field of school psychology made similar strides in the 1990s through its recognition of the advancement of EBP within the second and third editions of *School Psychology: A Blueprint for Training and Practice* (National Association of School Psychologists [NASP], 2006; Ysseldyke et al., 1984). Despite clear language in the NASP Practice Model (NASP, 2020) encouraging EBP, school psychologists have been, in some cases, slow to implement evidence-based approaches for conventional assessment and interpretation of their instrumentation[1] (e.g., assessment for the purpose of service identification and selection) as the field progresses into the 21st century. Instead, there is considerable evidence that questionable and low-value practices (LVPs) continue to permeate school psychology training and practice (Kranzler et al., 2020; Lilienfeld et al., 2012; Lockwood & Farmer, 2020).

Recognizing the central role that assessment plays in school psychology, this article discusses factors that serve to maintain questionable and LVPs in clinical assessment, with an emphasis on issues pertaining to professional judgment and critical thinking.[2] This article concludes with general recommendations for the adoption of EBP in both school psychology practice and training and specifically emphasizes recommendations that enhance evidence-based assessment. In framing this discussion, consideration is given to the ways in which digital

[1] This paper focuses on traditional assessment procedures, though the authors acknowledge that functional assessment procedures (e.g., curriculum-based measurement, functional behavioral assessment) may be similarly implemented (e.g., Gross et al., 2019).

[2] It is recognized that LVPs exist in a complex ecosystem through which economic, historical, political, and social factors operate to influence practice (Montini & Graham, 2015). Though important, an in-depth discussion of these more distal factors is outside the scope of this manuscript.

technologies (i.e., social media) are now being utilized by stakeholders to disseminate practice-related information at scale.

Evidence-Based Assessment, Pseudoscience, and LVPs

While the general notion of EBP is established in the school psychology literature, related terms such as *evidence-based assessment* (EBA), pseudoscientific practices, and LVP remain somewhat disconnected. Hunsley and Mash (2007) defined EBA as "the use of research and theory to inform the selection of assessment targets, the methods and measures to be used, and the manner in which the assessment process unfolds and is, itself, evaluated" (p. 31). LVPs are defined as those that: (a) have limited evidence for their clinical utility, (b) are not the most effective available practice, (c) have unacceptable risk of adverse effects, or (d) are diagnostically or therapeutically unnecessary (McKay et al., 2018). By contrast, Lilienfeld and colleagues have defined *pseudoscientific practices* as those "that seem to be grounded in science but are not" (Lilienfeld et al., 2012, p.7). That is, proponents of these practices often state hypotheses in such a way that they are not empirically testable which allows them to exist in perpetuity (i.e., clinical lore). Accordingly, lack of falsification and/or subsequent theoretical modification by *ad hoc* hypothesis in the presence of disconfirming evidence are important criteria for distinguishing science and pseudoscience in the theoretical literature (Meehl, 1967; Popper, 1967), although such demarcations as they relate to clinical practice are less firmly established. Thus, low-value practice may be a more appropriate label for describing questionable and ineffective practices than more frequently used terms such as pseudoscientific practices.

Unfortunately, there is empirical evidence that some discredited LVPs continue to be taught (e.g., Canivez, 2019; Lockwood & Farmer, 2020) and subsequently used by school

psychologists to make high stakes decisions about children and adolescents in clinical practice (Benson et al., 2019; Gross et al., 2019; Sotelo-Dynega & Dixon, 2014; VanDerHeyden, 2018). Further, LVPs continue to be widely promoted in popular textbooks, interpretive manuals (Farmer, McGill et al., 2020), and in sanctioned continuing education for school psychologists (Rabasco et al., 2020; Washburn et al., 2019). Given the absence of compelling scientific support, it is important to reflect on the question, *Why do low-value assessment practices persist in school psychology?* Concerns surrounding the use of LVPs have been voiced for decades in the scientific literature, leading experts in assessment to enjoin practitioners to "just say no" to such applications (e.g., Gross et al., 2019; McDermott et al, 1990; McGill et al., 2018; VanDerHeyden, 2018). For a profession that prides itself in aligning with the scientist-practitioner model, the perpetuation and multi-generational transmission of problematic assessment and interpretive practices erodes the credibility of the field. For example, given the longstanding resistance to eschewing cognitive profile analysis (e.g., McGill et al., 2018), it is fair to ask whether the practice of assessment, as it is presently employed, should be regarded as a form of pathological science[3] that is impervious to scientific debunking.

Clinical Judgment in Decision Making

A core assumption of the EBA framework is that psychological assessment—and by extension, psychoeducational assessment—is fundamentally a decision-making task (Hunsley & Mash, 2007). When school psychologists make decisions about a student's classification, placement, intervention outcomes, and whether data are from a psychometrically trustworthy or

[3] This may be an unpalatable label, but readers are asked to look past the pejorative connotation of the term. According to Langmuir and Hall (1989), pathological science is essentially an area of research that will not go away long after most scientists have concluded that it is likely unsupported.

otherwise sound source, the ultimate interpretation of those data rests on clinical judgment. Haynes et al (2018) defined clinical judgment as "a prediction, decision, or judgment regarding a client" (p. 269), though it is often used to describe a clinician's acumen for detecting "rich and subtle information that highly seasoned practitioners can obtain from certain assessment measures" (Garb et al., 2012, p. 133). The assertion is that clinical expertise[4] permits the identification of relevant, useful information beyond that captured by an instrument's primary output alone.

Problems with clinical judgment are well known and have been featured prominently in the field (e.g., Macmann & Barnett, 1997). It is not suggested that clinical judgment within the context of assessment should be routinely dismissed as lacking value as a matter of course. Whereas clinical judgment plays an important role in the interpretation of data (Dombrowski, 2020b; Kranzler & Floyd, 2020), its value is predicated on the supposition that clinical ecosystems contain systematic feedback loops attesting to the veracity of a diagnostic conclusion (Kahneman & Klein, 2009), a feature that is rarely present in school-based settings. For instance, unlike in medicine, which has biological markers whereby testing can confirm a provisional diagnosis, school psychology generally does not contain these types of feedback mechanisms. Furthermore, the value of intuitive judgement is likely degraded when school psychologists stray too far from the best available research evidence in an attempt to construct a clinical conceptualization that explains why a student is struggling in school (Dombrowski, 2020b; Lilienfeld et al., 2012). Nonetheless, such speculations persist in clinical assessment because

[4] Clinical expertise is not to be confused with clinical competency. See Overholser (2010) for a conceptual clarification of clinical expertise. Whereas competency is attained via education, training, and supervised experience, expertise is obtained following deliberate practice in a high validity environment.

some practitioners do not take into consideration the risk associated with the prospect of committing interpretive error (Watkins, 2009).

Science and Critical Thinking as the Bedrock of EBA

It has long been known that scientific decision-making and critical thinking skills are useful for protecting against bias and interpretive error and serve as the foundation of any scientific discipline (Popper, 1967). This was recognized by Meehl (1993) decades ago when he lamented the lack of such training—what he termed 'hardnosed skepticism'— in psychology training programs at that time. Reflecting on his career to that point, Meehl indicated that such exposure to scientific thinking was arguably the most important aspect of his doctoral education. Sagan (1995) defined scientific thinking as follows:

> Science involves a seemingly self-contradictory mix of attitudes. On the one hand, it requires an almost complete openness to all ideas, no matter how bizarre and weird they sound, a propensity to wonder…But at the same time, science requires the most vigorous and uncompromising skepticism, because the vast majority of ideas are simply wrong, and the only way you can distinguish the right from the wrong, the wheat from the chaff, is by critical experiment and analysis. (p. 30)

Accordingly, a scientific discipline such as school psychology should contain a balance between innovation and skepticism. If too much deference is given to innovation and every new idea is uncritically adopted, many contraindicated techniques and practices may enter the field. On the other hand, if the field embraces cynicism and dismisses each innovation before evaluating its potential utility, the field will fail to progress as a discipline.

Although researchers in school psychology (e.g., Canivez, 2019; Dombrowski, 2020a; Hunter, 2003; Kratochwill, 2007) have called for increased attention to EBA practices, it can be

argued that *before* EBA can be actualized, additional consideration of the development of foundational skills in critical thinking and scientific decision-making may be required (Canivez, 2019; Lilienfeld et al., 2012; Lilienfeld & Strother, 2020).

Consumption and Presentation of Research Summaries

One of the first practical steps toward embracing an evidence-based framework is through critical evaluation of the available research evidence. School psychologists are encouraged to consider the quality of the research surrounding traditional assessment and interpretive practices given that evidential quality is not always equal. In scientifically oriented disciplines, the double-blind peer review process is considered the gold standard for research (Mayden, 2012). Nonetheless, the peer review process is not infallible and there are examples of articles that have been published in venerable journals (e.g., *The Lancet*) that should not have been (e.g., due to extraordinary claims based upon a limited sample size and unsophisticated analytical methodology; e.g., the infamous Wakefield et al. [1998] autism-vaccine study that was later retracted).[5]

In contrast to journal articles, books, chapters, and other dissemination sources (e.g., workshops, webinars, digital media, advertorials, and test technical manuals) are typically not subjected to blinded peer review. In fact, one of the warning signs of pseudoscience is the evasion of such scrutiny (Lilienfeld et al., 2012). As Lilienfeld et al. (2012) stated, "whereas sciences rely on peer review as a partial safeguard against error, many pseudosciences fly under the radar of peer review, disseminating and promoting claims before they have been subjected to careful scrutiny by experts" (p. 24).

[5] Although retraction may be regarded as equivalent to a form of scientific death penalty, it sometimes does little to prevent continued dissemination of a discredited article among affinity groups through the internet and social media (Howard & Reise, 2018).

Finally, when considering research, it is important to critically examine the quality of the sources cited, and even how they are referenced to support positions on assessment and interpretation. For instance, Cohen's (1959) article has been frequently cited as the basis for endorsing subtest pattern analysis on IQ tests and this citation has been recycled across the decades in various interpretive guidebooks (e.g., Kaufman, 1974; Kaufman et al., 2016). However, inspection of the source reveals that Cohen did not offer strong substantiation for this practice. As Kohn (2007) noted, it is not uncommon for sources to be cited erroneously to provide the illusion of support for an idea, even when that citation is an outright contradiction of the statement in question (c.f., Dombrowski et al., 2021). For example, although related specifically to aptitude by treatment interactions (an assumption underlying most profile analysis-based interpretive approaches), Schneider and Kaufman (2017) stipulated that, "after rereading dozens of papers defending such assertions, including our own, we can say that this position is mostly backed by rhetoric in which assertions are backed by citations of other scholars making assertions backed by citations of still other scholars making assertions" (p. 8). One avenue for checking citations is to use https://scite.ai/, which may help readers to check the veracity of scientific findings.

Furthermore, it is important to assess the degree to which resources that counter the contentions offered are cited and addressed. As noted by Lilienfeld et al. (2012), omitting countering resources creates the illusion that there is more support for a practice than there may otherwise be. Thus, the EBA discussion would benefit from a reframing of the discourse to acknowledge that there are few examples in our practice where we can truly say that a clinical technique is completely devoid of evidence in total (Schneider & Kaufman, 2017). Instead, it is the degree to which scholars and practitioners find the research evidence that is cited compelling.

It may very well be the case that future research will ultimately vindicate an idea or practice; however, it is contended that many proponents of LVPs have yet to complete the exploratory scientific legwork necessary before proceeding to theory confirmation phase, which is likely why dismantling studies continue to emerge in the literature for many of these practices (Scheel et al., 2020).

According to Popper (1967), the only evidence that should count as verification of a scientific practice or theory is that which results from a genuine attempt to falsify or refute it. This is because it is easy to find evidence for a preferred theory or practice if one only looks to compile evidence that is confirming. Consequently, a "good" scientific theory is one that is potentially falsifiable, makes important and useful predictions, and has survived countless attacks and critical tests. Examples of confirmatory evidence that are weak and easy to find include personal experience and observation, expert opinion, and anecdotal case studies. Additionally, selected statistical methods (e.g., confirmatory factor analysis) can be used in a way to evade falsification yet provide the illusion of empirical verification given the perceived sophistication of the methodology and the statistical degrees of freedom afforded to the researcher (Fried, 2021; Meehl, 1978).

Factors that Perpetuate LVPs in Assessment

In the following section several factors are discussed that may support the continuation of LVPs in clinical assessment. Admittedly, these factors are provisional and feedback and constructive criticism from readers is welcome. Nevertheless, discussing potential maintaining factors of LVPs serves two purposes. First, it may serve as a first approximation of a research agenda for this area. Second, it may provide scholars and practitioners with insight into contextual variables that propagate the use of LVPs in school psychology.

While the targeted removal of any particular LVP likely warrants an in-depth contextual evaluation (Farmer, Zaheer et al, 2020; Montini & Graham, 2015), more general factors are also worthy of discussion. Willingham (2012) noted the tendency to adopt the *simple egalitarian principle* when evaluating evidentiary claims in education and psychology. That is, regardless of the quality of the evidence-base, there is the assumption that all competing perspectives are equally valid. While those who would adopt this perspective may be well intentioned, this relativistic approach to evaluating evidence may lead to an uncritical acceptance of assessment procedures advertised as requiring specialized training or certification from a commercial entity (Meehl, 1997).

Errors in Diagnostic Decision-making

Although such credentialing increases not only credibility, but also potentially perceived effectiveness, it is important to recognize that all humans are prone to errors in thinking (Kahnehan, 2011). The conferral of a doctorate in psychology, certification in school psychology, licensure as a psychologist, or receipt of a diplomate in some branch of psychology is not a sufficient safeguard. In fact, Meehl (1993) warned the field of psychology about complacency in skeptical thinking, noting that if clinicians lose their passion to question their practices, then "…we are little more than be-doctored, well-paid soothsayers" (p. 729). It can be argued that the advent of managed care, where techniques are evaluated for their effectiveness as a precursor for reimbursement, and the rise of the EBP framework were motivated by the field's failure to police itself. Accordingly, school psychologists would do well to exercise appropriate vigilance when evaluating claims in the literature particularly those emanating from non-empirical sources (Meichenbaum & Lilienfeld, 2018).

Unfortunately, many scholars (e.g., Kahneman, 2011; Sagan, 1995) have noted that practitioners often rely on their intuition (i.e., "gut") and personal observations, and tend to downplay scientific findings especially when they run counter to prevailing beliefs—a phenomenon known as the availability heuristic. Whereas it is important to acknowledge that many scientific discoveries have evolved from an intuitive generative process that seemed to emerge serendipitously (Roberts, 1990), the use of personal intuition has not extended well to clinical decision-making (Lilienfeld et al., 2012; Meehl 1993; Watkins, 2009). In fact, the empirical literature suggests that actuarial models consistently outperform professional judgement in *most* classification decisions (Canivez, 2013). It can also be argued that too much preference for intuitive decision-making may be a contributory factor to the disproportionate representation of youth from diverse backgrounds in special education given what is known about the phenomenon of implicit bias (Dombrowski, 2020a; Sullivan, 2011; Sullivan & Bal, 2013). Consequently, school psychologists are encouraged to question whether preferred assessment methods afford adequate protection against the types of errors that are commonly encountered in these decision-making contexts. Potential cognitive errors and distortions of which all school psychologists should be aware when making high-stakes decisions about children and adolescents are outlined as a resource in the accompanying online supplement (see Table A1).

Pseudoscience in Clinical Assessment

Awareness of the aforementioned limitations is important, but not sufficient for advancing EBA. It is also necessary to recognize potential warning signs of pseudoscience as a class of problematic assessment practice that extends beyond LVP. In fact, this might be the most important application of critical thinking in clinical science (Tackett et al., 2017). Table A2

in the online supplement provides a list of "warning signs" associated with pseudoscience and hype movements in applied psychology (e.g., Lilienfeld et al., 2012; Lee & Hunsley, 2015; Meichenbaum & Lilienfeld, 2018). It should be noted that, in the realm of clinical assessment, there is no oversight agency like the Food and Drug Administration (FDA) to protect against the promotion of practices that have limited scientific credibility or that have even been outright debunked in the scientific literature (McFall, 2000). Even in cases where there is such an authority in other disciplines (e.g., the pharmaceutical industry), Gambrill (2012) noted that there is still the need to counterbalance marketing claims that push the boundaries of available research evidence. Within the field of school psychology, the following warning signs are often present in the various workshops, presentations, in-services, and the sundry internet and social media forums where practitioners often turn for information related to clinical assessment.

The Alchemist's Fallacy

Proponents of LVPs often contend that their methods are informative in practice when integrated with other sources of information via clinical judgment (e.g., Flanagan, Alfonso et al., 2018). Lilienfeld et al. (2006) referred to this interpretive practice as the "alchemist's fallacy." This logical fallacy posits that a practitioner can somehow turn a complex array of objective and subjective assessment data into veritable clinical gold via their astute clinical detective powers. In what can be regarded as a form of interpretive hubris, noted shortcomings furnished from psychometric evidence can be dismissed as irrelevant at the level of the individual—a convenient method that may be used to evade falsification altogether. Unfortunately, over 100 years of attempts to use psychoeducational assessment instruments in this fashion have yielded meager compelling evidence that support such contentions (Burns et al., 2016; Kranzler et al., 2020; McGill et al., 2018; Watkins, 2000). Whereas practitioners and trainers may believe that the

adverse effects of questionable assessment information are negated by the other information that is considered in the evaluation process, this is generally not the case as a dilution effect occurs whenever information that is not clinically useful is considered when making decisions about individuals (e.g., Canivez, 2013; Grove et al., 2000).

Hindsight Bias and Retrospective Linkages

Often, a clinical diagnosis is determined in hindsight after all data have been collected. This may lead to a well-crafted story that sounds intuitively appealing but uses a cognitive process whereby a clinical picture may have been integrated retrospectively (Macmann & Barnett, 1997). Post hoc interpretive practice may also be based upon the psychologist's belief that they have developed their own typology for selected conditions, which has been attained through years of accumulated practice. These practices are reified by the professional trade literature, and at workshops, when one encounters theoretical discussion and anecdotal examples of cases (often made up) that support this approach. It is certainly necessary to use clinical judgment to integrate data from multiple sources to arrive at a clinical conceptualization and classification (Dombrowski, 2020b); however, default statements (e.g., Decker & Luedke, 2021) as to the potential protective aspects afforded by such interpretive practice often fails to recognize research that has shown that humans are likely incapable of operating reliably from this configural vantage point (e.g., Maki et al., 2020) and highly susceptible to confirmation bias.

The Ad Populum Fallacy

It is also possible that continued LVPs are fostered by a form of field-wide communal reinforcement (i.e., the *ad populum* fallacy). The *ad populum* fallacy refers to the "erroneous belief that a technique that is widely used must be valid or effective" by a function of its popularity (Lilienfeld et al., 2006, p. 11). In turn, this belief system contributes to a type of

clinical and educational inertia that may be slow to self-correct despite accumulating evidence against such practices. As an example, consider the long-standing popularity of subtest interpretation on intelligence tests (e.g., McDermott et al., 1990) and psychoanalytic theory with its concomitant use of projective techniques in applied psychology (see Benson et al., 2019 for a review). In essence, history illustrates well that what is regarded as clinical zeitgeist within a particular field is slow, if not impervious, to change.

Training Resources, Training Programs, and Clinical Supervision

Growing evidence suggests that training variables have a substantial impact on how school psychologists practice (Cook et al., 2009; Sotelo-Dynega & Dixon, 2014). Cook et al. noted that supervisors, graduate instructors, and peers all influence an individual school psychologist's delivery of psychological services. For example, if a practice is introduced to a graduate student and presented as sacrosanct, it is unlikely that practice will be questioned or subjected to additional scrutiny after graduation and entry into the field.

Available Training Resources

Farmer and colleagues (2020) reviewed instructional materials (i.e., commonly used textbooks and test-specific chapters) for the five most frequently used cognitive assessment instruments, and while finding some variability among sources, most materials liberally encouraged the use of low-value interpretive techniques (e.g., cognitive profile analysis). This occurs most predominantly within the context of the identification of specific learning disability (SLD; Flanagan et al., 2018; Kranzler et al., 2020), but is also observed when determining eligibility for other special education classifications such as intellectual disability (Bergeron & Floyd, 2013).

Put simply, many textbook authors and editors have either failed to self-correct, have not kept up with scientific findings, or simply disregarded contradictory findings when they continue to espouse these clinical practices. For instance, Kranzler et al. (2020) and Dombrowski and McGill (2019) noted that Sattler (2018) has continued to discuss a successive level of subtest analysis that was initially proposed in 1974 and has been critically debunked by data for decades. Yet, some scholars who have long-espoused similar traditions (e.g., Kaufman et al., 2016) have partially moved away from aspects of these methods (e.g., ipsative subtest analysis and the assessment of cognitive scatter). Still, the science suggests that even further movement may be required. Unfortunately, relevant examples of even partial self-correction remain rare in school psychology.

A second example can be found with the dual discrepancy-consistency (DD/C) pattern of strengths and weaknesses (PSW) method of SLD identification (e.g., Flanagan et al., 2018). Although this practice specifically circumscribes primary interpretation of subtest-level scores, it continues the longstanding interpretive tradition of eschewing the full-scale IQ and instead emphasizes the interpretation of index- and composite-level broad ability scores. Before any innovative approach is adopted for the identification of SLD, empirical evidence must demonstrate that it improves clinical decision-making. Even though use of the DD/C method is widely promoted, the preponderance of available research on DD/C and other PSW methods has found that they do not reliably classify children and youth with and without SLD (Kranzler et al., 2019; Miciak et al., 2018; Stuebing et al., 2012; Taylor et al., 2017). The embrace of this type of practice by school psychologists is discouraging considering the disproportionate role that cognitive assessment continues to have on our field (Benson et al., 2019). Less is known about the quality of instruction for other forms of assessment commonly used by school psychologists

(e.g., CBM, behavioral rating scales and direct observations) and the degree to which these concerns may also be germane.

Training Programs

Sotelo-Dynega and Dixon (2014) reported that the majority of school psychologists use the assessment and interpretive methods taught in their training programs. Youngstrom (2013) reported similar results in clinical psychology. When considering that greater than 50% of training programs use at least one textbook that espouses problematic interpretive practices (Lockwood & Farmer, 2020; Miller et al., 2020), the degree to which pre-service school psychologists are exposed to the full mosaic of the scientific literature on clinical assessment remains an important question.

Additionally, it is unknown whether and to what degree training programs, particularly specialist level programs that educate approximately 70% of newly graduated school psychologists, adequately address important psychometric and measurement issues that often undergird debates on these matters (e.g., validity methodology, such as factor analysis, diagnostic utility, and incremental prediction). McGill and Wilson (2017) noted that likely fewer than 10% of specialist programs feature a standalone measurement course, despite surveys indicating that practitioners devote most of their service delivery time to psychoeducational assessment and related activities (e.g., report writing). If either topic is not adequately covered then this will make it difficult for school psychologists to determine whether a particular assessment or interpretive practice should be regarded as evidence-based. Given that measurement training in doctoral programs in psychology also has been shown to be generally inadequate (Aiken et al., 2008), the problem is not exclusive to specialist-level training in school psychology.

Site Supervision

The beginning of formal clinical training is doubtless an exhilarating yet stressful time. Beyond initial acculturation into the field, the emotionality amplified by these experiences further reinforces the acquisition of new knowledge and subsequent practice habits (Kolb, 1983). In many cases, this may well be a student's first exposure to making real life, high-stakes decisions about children and youth in the schools. Lacking confidence, the trainee may draw upon the supervisor to guide the assessment and interpretation process during clinical rounds. In sum, trainees are likely to practice in the fashion that was modeled for them by supervisors regardless of their developmental level (Barnett et al., 2007; Simon & Swerdlick, 2016).

To clarify, it is important to avoid placing blame on instructors, site supervisors, or training programs. There are likely a variety of contextual factors that maintain the presence of LVPs beyond the concerns outlined in this article and, as has been discussed, such practices are deeply entrenched (e.g., Dombrowski et al., 2007; Montini & Graham, 2015) via historical, social, political, and economic factors beyond a future practitioners' control. For example, local regulations may *require* that a practitioner utilize a derivation of the DD/C model for SLD classification. In such circumstances, a discerning practitioner may lack the freedom to vary to utilize more circumspect assessment techniques when rendering a classification decision for a student who is referred because of academic difficulties.

Given that many of these practices exist in an interdisciplinary context where school psychological practice intersects with education, special education, counseling, clinical psychology, pediatrics, speech pathology, and related disciplines, the variables sustaining any given practice are likely myriad (Farmer, Zaheer, et al., 2020). Researchers would do well to recognize these distinctions when making practice recommendations in the literature.

Co-Modification of Knowledge in the Marketplace of Ideas

Test publishing companies, test authors, and authors of various interpretive/diagnostic systems actively disseminate their instruments, products, and procedures through a variety of marketing channels. In some cases, those who created these instruments and interpretive procedures also conduct presentations (often sponsored by a commercial entity) regarding how to use these same procedures citing previous presentations as de facto evidence for the utility of their applications. This makes sense, as these individuals are most familiar with these applications. However, there may be a recursive, economic feedback loop that perpetuates LVPs that, all too often, emanate from these forums. In other words, publishers/authors create demand through marketing and effective communication within a versatile information ecosystem that creates an illusion of scientific merit (Fazio et al., 2015). As a result, practitioners purchase these products for implementation in the field, thereby providing publishers/authors with ample financial incentive to continue these exchanges (Gambrill, 2012).

New Information Era: An Accelerator for Pseudoscience?

Consonant with broader cultural trends, the ways in which information is disseminated in school psychology is poised to change profoundly as an increasing number of practitioners and scholars take to social media to promote their work, and network with colleagues via the numerous listservs and affinity groups now available to users on Facebook and other digital platforms. Further, spurred by the emergence of the open science movement, there are now a host of open-source repositories where scholars and practitioners can now access pre-prints of articles before they are even accepted for publication following peer-review, if at all, (e.g., PsyArXiv [https://psyarxiv.com/]). Put simply, the 21st century presents new challenges that

school psychologists will have to learn to navigate, and which undergirds the need for greater understanding of the issues discussed in this article.

Whereas the accessibility and scale of these technologies serve to democratize knowledge production, the ability of misinformation to spread widely and quickly via these technologies is already well documented (Brashier & Marsh, 2020; West & Bergstrom, 2021). As a result, it is questionable whether our traditional means of disseminating scientific findings through vetted published sources (i.e., expert blind peer review) can rival the scale that is achievable through social media and commercial marketing practices. Traditional scientific resources are hard to access by most practicing school psychologist though scholars are increasingly making their research available on personal websites; and even via the dissemination approach now offered by *School Psychology Review* post publication where authors provide a video synopsis of their research.

To clarify further, the use of the internet or social media as a primary vehicle to disseminate ideas in school psychology should not necessarily be viewed negatively. Nevertheless, it is important to acknowledge that the barriers to entry in the social media landscape are nominal and can be exploited to promote junk science (Beall, 2018). One way to strike a balance between critical thinking and social-media marketing is to consider the aforementioned markers of pseudoscience within marketing and entrepreneurial practice. Pratkanis (1995) described a way in which pseudoscientific practice (and by extension LVPs) can be marketed through specific promotional tactics. These markers are presented in online supplement Table A3. Interested readers are also encouraged to consult Herbert et al. (2000) for further elaboration of the above referenced indicators within marketing practices that have been

used to promote eye movement desensitization therapy (EMDR) as but one salient example of the marketing of a questionable practice in professional psychology.

Implications for Advancing Social Justice in School Psychology

Additionally, the current information ecosystem presents both challenges to, and opportunities for, the promotion of social justice initiatives in the field (e.g., Jimerson et al., 2021). In fact, the objectives of social justice and EBA are intertwined with both emphasizing the promotion of the well-being of youth through the fair access to services and equity in clinical assessment practice (presumably that have an empirical basis; Gambrill, 2012). For example, the intersection of social justice and EBA comes to fore when considering the dissemination of newly promoted teleassessment techniques concomitant with the recent COVID-19 pandemic (e.g., Farmer, McGill, Dombrowski, McClain et al., 2020). Not only must the field cautiously embrace this emergent assessment approach due to remaining questions about its equivalence to more traditional assessment approaches (Farmer, McGill, Dombrowski, Benson et al., 2021), but also because of potential lack of accessibility and necessary resource support at the district-level. Youth from disadvantaged socioeconomic backgrounds may not have access to the internet and appropriate technology to be validly and reliably assessed (Farmer, McGill, Dombrowski, McClain et al., 2020). Admittedly, this is a focal concern beyond the more general ethical imprimatur to ensure that the decision to adopt assessment and interpretive technologies by practitioners are designed to advance equity in clinical practice (e.g., Lester, Strunk & Hoover, 2020). Messick (1995) encouraged assessment professionals to consider the consequences of testing as a critical factor in determining whether an assessment instrument or method of interpretation should be regarded as fully meeting established standards for validity. To this point, the results of a recent investigation by Sullivan, Sadeh, and Houri (2019) is sobering. In an

examination of the eligibility decisions by 302 practicing school psychologists, it was found that participants tended to render decisions that did not cohere with available assessment data. Additionally, as potential test bias remains an important concern whenever a test is developed and/or revised, practitioners are encouraged to look beyond the standard information that is presented in test technical manuals such as differential item function (DIF). It is important to understand that DIF analyses are instructive for determining whether a particular test item is biased, but it is not sufficient for determining whether a test's recommended interpretive structure holds across racial/ethnic groups. This is better ascertained through assessment of measurement invariance (e.g., Dombrowski, Watkins et al., 2021)—information which is rarely, if ever, reported in test technical manuals. Put simply, if an instrument is not found to be invariant across groups, it suggests that the instrument is likely not measuring the same constructs and/or not measuring hypothesized constructs equally across groups which certainly has implications for the use of that instrument within a social justice framework.

Strengthening the EBA Framework in the 21st Century

School psychologists are often bombarded with monikers suggesting a scientific foundation for a given assessment practice (e.g., "research-based," "scientifically proven," "evidence-based," and/or "empirically-guided") or testimonials from so-called authorities in the field (i.e., appeals to eminence). Such terms are often invoked in a manner by which the term itself automatically confers a false sense of confidence in the technique being referenced (Willingham, 2012). For example, proponents of the DD/C approach (Flanagan et al., 2013) have long-argued that their method is *research-based* despite the fact that most, if not all, of their critical arguments in favor of this approach to SLD identification have been called into question (e.g., Fletcher & Miciak, 2017; Zaboski et al., 2018). Thus, while it may be *technically* correct to

invoke the term “research-based” in this context, no compelling empirical evidence has been published as of yet that substantiates the utility of the DD/C approach for differential diagnosis or treatment planning. Accordingly, practitioners are encouraged to consider whether characterization of a practice as research-based equates to that practice actually being *empirically* supported.

Lilienfeld et al. (2012) noted that psychology practitioners can embrace the science side of the scientist-practitioner equation or they can elect to practice from a non-scientific perspective. However, school psychologists do not necessarily need to engage in research to operate as a skilled clinical scientist. As Reynolds (2011) stated, “it is not enough to read the literature or to attend in-service or continuing education seminars. We must read and listen carefully. Just because a paper is published in a peer-reviewed journal does not mean the science is accurate or necessarily strong” (p. 5). Further, in the digital age, it is now all too easy for individuals to brand themselves as self-appointed experts in the clinical assessment arena regardless of whether such appointments are justified (Lee & Theokary, 2020). As a prescient example, consider the plethora of “experts” on the use of tele-assessment that emerged at the onset of the COVID-19 pandemic despite nascent use of these platforms in our field at that time (Farmer, McGill, Dombrowski, Benson et al., 2021). Given the commercial interests involved in this landscape and considering that school psychology has a history of inconsistent disclosure of potential conflict of interests related to these matters, additional scientific scrutiny is warranted (Truscott et al., 2004).

Training in Scientific Decision-Making and Critical Thinking

To mitigate these concerns, school psychology training programs should strongly consider requiring formal training in scientific decision-making and critical thinking skills,

including those skills needed to scrutinize proposed clinical practices *before* implementation. Ideally, this would occur at the onset of training in an introductory course that sets the stage for future learning. Specifically, training programs should consider emphasizing skills relating to clinical judgment and prediction, and the factors (e.g., Alchemist's fallacy, confirmation bias, hindsight bias, ad hoc hypothesizing, illusory correlation, hyperbolic marketing practice) that can lead practitioners astray when making high-stakes decisions about children and adolescents.

One way to address the inclusion of critical-thinking skills and the research literature on clinical judgment would for accrediting bodies to require this content area for program accreditation. For example, according to the accreditation standards of the American Psychological Association (APA), all students must demonstrate the discipline-specific knowledge that is the foundation of professional identity as a psychologist (APA, 2019). One of APA's four domains of discipline-knowledge is methods of inquiry and research, which includes research methods, statistical analysis, and psychometrics. Similarly, one of NASP's practice model domains involves consideration of the research process, which implies a consideration of these same topics. Nevertheless, coverage of the literature on critical-thinking skills and clinical judgment is not expressly mentioned in either.

Finally, it is important to acknowledge the Standards for Educational and Psychological Testing (American Educational Research Association, et al., 2014; now available open access https://www.testingstandards.net/open-access-files.html) as a way to facilitate understanding of evidence needed to support the appropriate and ethical use of tests and interpretation of test scores in clinical practice. The use of LVPs could expose a school psychologist to potential litigation and even cause harm by taking away time and resources from the use of practices that have a better-developed clinical utility evidence-base. Thus, it is incumbent upon all school

psychologists to act according to the best available evidence as required in extant ethical codes governing professional practice (Weiner, 1989)

Mentoring Post-Graduation

School psychologists' education regarding assessment no doubt continues beyond program completion into the early years and throughout their careers. While mentoring from a more experienced school psychologist is necessary, it is not in and of itself a sufficient safeguard against LVP (Choudry et al., 2005). Mentoring should be obtained from individuals who are knowledgeable of the EBA literature. Given that the half-life of knowledge in psychological science is roughly only 7.2 years (Neimeyer et al., 2012), continuous renewal of the knowledge base is therefore necessary for mentors *and* mentees alike and should be required by all relevant accrediting and certification bodies.

There are several ways to foster meaningful continued learning post-graduation. Within larger school districts, it is not uncommon for practitioners to share articles from interested peers or for target articles to be the focus of group discussion in unit meetings. Support for such efforts is encouraged, but it is important to keep in mind that the degree to which any one article or even a set of articles faithfully captures the *actual* state of the literature on any particular issue depends on how these resources are curated. Relying only on what is openly available online raises the risk of framing effects due to the artifact of convenience. More importantly, if proponents of LVPs are permitted to disseminate confirmatory information or information that is of dubious quality, these scholarly exchanges can potentially serve as incubators for the illusory truth effect—a phenomenon where information that is known to be false begins to be perceived as true through repeated exposure (Fazio et al., 2015).

Additionally, reaching out to former faculty to ask whether they might produce a webinar or short in-person seminar for former alumni of the program in an area of the faculty's expertise might be beneficial. Finally, compiling and keeping a listing of EBA resources to periodically consult can be useful against protecting against the stasis that can result from information overload (see Table A4 in the online supplement for a preliminary, non-exhaustive list of resources).

Continuing Education Offerings

Given their widespread dissemination, learned organizations within the profession bear a degree of responsibility to establish more stringent criteria for vetting continuing education offerings to ensure that LVPs are not promoted via these mechanisms. Continuing education is a requirement for licensure as a psychologist and certification as a school psychologist in most jurisdictions. For example, those holding the Nationally Certified School Psychologist (NCSP) credential by NASP must complete a minimum of 75 hours of continuing professional development (CPD) activities within 3 years of renewal. NASP further requires that at least 10 of those hours must come from a NASP- or APA-approved provider. Although the CPD implementation guidelines state that these activities' instructors must have training and/or experience for them to be considered experts in the subject matter being taught, they do not require explicit review of the quality of the evidence-base undergirding the professional development activities that are provided (Washburn et al., 2019). Additionally, school psychology faculty ought to consider creating more accessible, yet scientifically substantiated, CPD offerings for practitioners. This would be a valuable service contribution to the profession and likely do even more to advance EBA then can be accomplished by the publication of journal article no matter the quality of the venue in which it is published. For better or worse, open

access resourcing is often the single biggest driver in dissemination of information to practitioners in the present knowledge production economy (Beall, 2018)

Conclusion

Since the inception of the field, assessment has played in integral role in school psychology practice in the United States, and given regulatory oversight, its role is likely to remain prominent in the 21st century and beyond. Accordingly, this article encourages the profession to better embrace critical thinking and scientific decision-making as a potential safeguard against the retention of low-value assessment and interpretive practices that presently pervade our field (McGill et al., 2018). Given the high-stakes decisions school psychologists are entrusted, continuation of such practices portends to undermine the scientific credibility of the profession, runs counter to the scientist-practitioner model widely espoused within the profession, and risks the school psychology being regarded as a pathological discipline (Languir & Hall, 1989) lacking the ability to self-correct[6]. Given the longstanding concern associated with

[6] Positionality Statement: Given the aims of this article, the authors acknowledge that their experiences and worldview have informed their approach to epistemological inquiry and knowledge dissemination in school psychology training and practice. The authors all identify as White, cisgender, heterosexual males who come from a variety of socioeconomic backgrounds and different generations of experience. All authors were trained in accredited doctoral programs, specializing in school psychology, and hold varying ranks within the school psychology academy. While the authors differ somewhat in their research interests and activities, they have all researched the intellectual and psychoeducational assessment of children and youth. Each author is committed to the evidence-based practice (EBP) movement in school psychology, which involves the evaluation of empirical scientific evidence and the tenets of critical thinking to improve the quality of professional psychological services (e.g., assessment, diagnosis, intervention, and consultation) delivered to children and youth, families, and schools. It is acknowledged that power structures may influence what is regarded as EBP. Like many aspects of psychological science, those power structures have historically been dominated by individuals who come from privileged backgrounds (i.e., White, cisgender, male) and may not reflect the full mosaic of diversity of thought within the field. As a result, the authors acknowledge that their background and experience have influenced the lens through which they generated the contents of this article.

some of the LVPs that continue to pervade our profession (e.g., cognitive profile analysis), it is fair to ask what evidence, if any, would be sufficient to compel adherents to disavow these methods? This very question represents the bulwark of clinical science. In an era of scientific psychology that is encumbered by a replication crisis, it should be self-evident there is no longer such thing as a "sacred cow" (Lilienfeld & Strother, 2020). As school psychology approaches its first centennial as a formal profession, and advances well into the 21st century, school psychologists must be willing to risk casting aside practices that have long promised clinical gold, but for decades have failed to deliver meaningful outcomes.

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Supplemental Tables (A1-A4)

Beyond the Rhetoric of Evidence-Based Assessment: A Framework for Critical Thinking in Clinical Practice

by S. C. Dombrowski et al.

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Table A1

Potential Cognitive Errors and Biases Relevant to Practicing School Psychologists

Error	Description
Naïve realism	Belief that the world is precisely as we see it.
Confirmation bias	Tendency to seek out evidence consistent with our beliefs, and deny, dismiss, or distort evidence that is not.
Premature closure	Coming to a premature conclusion before adequate evidence is available.
Belief perseverance	Tendency to cling to beliefs despite repeated contradictory Evidence.
Illusory correlation	Tendency to perceive statistical associations that are objectively absent.
Hindsight bias	Error of perceiving events as more predictable after they have occurred.
Groupthink	Preoccupation with group unanimity that impedes critical evaluation of an issue.
Overreliance on heuristics	Tendency to place too much weight on mental shortcuts and rules of thumb.
Availability heuristic	Judging the probability of an event by the ease with which it comes to mind.
Anchoring heuristic	Tendency to be unduly influenced by initial information.
Affect heuristic	Judging the validity of an idea by the emotional reaction it elicits in us.
Representativeness heuristic	Judging the probability of an event by its similarity to a Prototype.
Base rate neglect	Neglecting or ignoring the prevalence of a characteristic in the population.
Bias blind spot	Tendency to see ourselves as immune to biases to which others are prone.
Unpacking	Failure to elicit all relevant diagnostic information about an Individual.
Aggregate bias	Assumption that group data are irrelevant to a given individual or client.
Search satisfying	Tendency to end one's search for other diagnostic possibilities once one has arrived at an initial diagnostic conclusion.
Diagnostic overshadowing	Tendency for a dramatic, salient diagnosis (e.g., major depression) to lead clinicians to overlook less obvious diagnoses (e.g., learning disability).
Diagnosis momentum	Tendency to uncritically accept previous diagnoses of the same individual.
Psych out error	Neglecting the possibility that a behavioral problem is medical, not psychological, in origin.
Pathology bias	Tendency to over-pathologize relatively normative behavior.

Note. Reprinted from Lilienfeld, S. O., Ammirati, R., & David, M. (2012). Distinguishing science from pseudoscience in school psychology: Science and scientific thinking as

safeguards against human error. *Journal of School Psychology*, *50*, 7-36. http://dx.doi.org/10.1016/j.jsp.2011.09.006 with permission from Elsevier.

Table A2

Twenty Warning Signs of Pseudoscientific Practice

1.	Lack of falsifiability.
2.	Overuse of ad hoc hypotheses.
3.	Lack of self-correction.
4.	Emphasis on confirmation rather than refutation.
5.	Evasion of peer review.
6.	Overreliance on anecdotal evidence.
7.	Overreliance on theory.
8.	Lack of connection with basic or applied research.
9.	Extraordinary claims.
10.	Ad antequitem fallacy (i.e., appeal to tradition or common practice).
11.	Ad populum fallacy (i.e., it works because it is used widely).
12.	Use of hyper-technical language or jargon such as neurobabble or psychobabble.
13.	Absence of boundary conditions.
14.	Reversed burden of proof in which proponents of an approach demand that critics refute claims of effectiveness.
15.	Eminence-based assessment (i.e., extensive appeals to authority or gurus).
16.	Reliance on endorsements and testimony from presumed experts as evidence.
17.	Tendency of proponents or followers of an assessment practice to insulate themselves from criticism or be dismissive of criticism (i.e., dogmatic insularity).
18.	Limited or non-existent reporting of contradictory findings.
19.	Appeals to emotion (i.e., critiques were unfair or hash and mean spirited; use expert clinical judgment).
20.	Lack of recognition or disclosure of past or present conflicts of interest.

Note. Adapted from Dombrowski (2020a); Lilienfeld et al., (2012); Lee and Hunsley (2015); and Meichenbaum and Lilienfeld (2018).

Table A3

Potential Markers of Pseudoscience within Marketing and Entrepreneurial Practice

Marker	Example
Creation and use of phantom goals	Make a claim that an assessment instrument or interpretive process is capable of precise diagnosis and effective intervention.
Construction of vivid appeals	Provide floridly detailed case examples of successful outcomes using an instrument or procedure, which are always more interesting than dry scientific evidence at the group level.
Use of pre-persuasion	Set the stage in one's favor by presenting only positive outcomes.
Use of the rationalization trap	Engage the psychologist with the instrument or interpretive procedure in a way that requires a commitment of time, energy, and money, which in turn induces a cognitive set seeking confirmatory evidence regarding the usefulness of a practice given the investment into the practice.
Manufacture source credibility	Create a powerful authority or guru who is charming, likeable, and who others would be viewed as unreasonable, if not irrational, not to follow.
Establish a professional granfalloon (Vonnegut, 1976)	Create a group of professionals who unify together to support a cause or position that is meaningless or scientifically unsupported.

Note. Adapted from Pratkanis (1995) and Vonnegut, K. (1976). *Wampeters, Foma & Granfalloons (opinions)*. Dial Press.

Table A4

Recommended Evidence-Based Assessment Resources for Practitioners

Critical Thinking and Scientific-Decision Making	Lilienfeld, S. O., Ammirati, R., & David, M. (2012). Distinguishing science from pseudoscience in school psychology: Science and scientific thinking as safeguards against human error. *Journal of School Psychology*, *50*(1), 7–36. https://doi.org/10.1016/j.jsp.2011.09.006 Lilienfeld, S. O., Lynn, S. J., & Lohr, J. M. (Eds.). (2015). *Science and pseudoscience in clinical psychology* (2nd ed.). Guilford Press. Meichenbaum, D., & Lilienfeld, S. O. (2018). How to spot hype in the field of psychotherapy: A 19-item checklist. *Professional Psychology: Research and Practice*, *49*(1), 22. https://doi.org/10.1037/pro0000172 Popper, K. (1962). *Conjectures and refutations: The growth of scientific knowledge* (2nd ed.). Routledge. https://www.routledge.com/Conjectures-and-Refutations-The-Growth-of-Scientific-Knowledge/Popper/p/book/9780415285940 Pratkanis, A. R. (1995). How to sell a pseudoscience. *The Skeptical Inquirer*, *19*, 19–25.
Independent Test Reviews	*Journal of Psychoeducational Assessment* {published periodically} *Mental Measurements Yearbook*, Buros Center for Testing (https://buros.org/mental-measurements-yearbook) *Mental Measurements Yearbook* Instructional Modules (https://buros.org/mmy-instructional-modules)
Psychoeducational/Psychological Assessment and Report Writing	Dombrowski, S. C. (Ed.). (2020). *Psychoeducational Assessment and Report Writing* (2nd ed.). Springer. https://doi.org/10.1007/978-3-030-44641-3
Cognitive Assessment	Kranzler, J. H., & Floyd, R. G. (2020). *Assessing Intelligence in Children and Adolescents: A Practical Guide for Evidence-based Assessment* (2nd ed.). Rowman & Littlefield. Sattler, J. M. (2018). *Assessment of children: Cognitive foundations* (6th ed.). Sattler Publishing.
Interpretation of Cognitive Assessment Data	Burns, M. K., Petersen-Brown, S., Haegele, K., Rodriguez, M., Schmitt, B., Cooper, M., Clayton, K., Hutcheson, S.,

	Conner, C., Hosp, J., & VanDerHeyden, A. M. (2016). Meta-analysis of academic interventions derived from neuropsychological data. *School Psychology Quarterly, 31*(1), 28–42. https://doi.org/10.1037/spq0000117 McGill, R. J., Dombrowski, S. C., & Canivez, G. L. (2018). Cognitive profile analysis in school psychology: History, issues, and continued concerns. *Journal of School Psychology, 71*, 108–121. https://doi.org/10.1016/j.jsp.2018.10.007 Watkins, M. W. (2000). Cognitive profile analysis: A shared professional myth. *School Psychology Quarterly, 15*(4), 465–479. https://doi.org/10.1037/h0088802 School Psyched Podcast: Episode 60 (https://schoolpsychedpodcast.wordpress.com/2018/01/22/episode-60-dr-ryan-mcgill-on-cognitive-scatter/) Episode 63 (https://schoolpsychedpodcast.wordpress.com/2018/03/05/episode-63-cattle-horn-carroll-and-cognitive-tests-theoretical-and-practical-considerations/) Episode 104 (https://schoolpsychedpodcast.wordpress.com/2020/05/18/spp-104-learning-disabilities-assessment-in-school-psychology-the-covid-19-pandemic-and-beyond/comment-page-1/) Trainers of School Psychologists Webinar on Cognitive Profile Analysis (https://okstate.instructuremedia.com/embed/abb49084-723f-484e-8e53-a8f71f3ec91c)
Assessment of Childhood Disorders	Youngstrom, E. A, Prinstein, M. J., Mash, E. J & Barkley, R. A. (Eds.). (2021). *Assessment of disorders in childhood and adolescence* (5th ed.). Guilford Press.
Diagnostic and Evaluative Resources	Haynes, S. N., Smith, G. T., & Hunsley, J. D. (2018). *Scientific foundations of clinical assessment* (2nd ed.). Routledge. Introduction to ROC Curve analysis (https://vimeo.com/273766440) University of North Carolina-Chapel Hill (Eric Youngstrom EBA site): https://ericyoungstrom.web.unc.edu/evidence-based-assessment
APA Division 12 EBA Resources	https://div12.org/assessment-repository/ (Under development as of the writing this article)
Psychometric Foundations	Psychometrics from the Ground Up (Joel Schneider site): https://assessingpsyche.wordpress.com/psychometrics-from-the-ground-up/
Scientific Psychology Foundations	Paul Meehl lecture series (University of Minnesota-Twin Cities): https://meehl.umn.edu/video

Note. EBA = Evidence-based assessment. Conflict of interest disclosure: S. C. Dombrowski and J. H. Kranzler are authors of texts on assessment and receive nominal royalties from the sale of their books.