Questions About Certainty and Uncertainty in Clinical Practice

Nickola Wolf Nelson
Western Michigan University, Kalamazoo

A good essayist makes readers think critically about a topic. Kamhi (2011), consummate essayist and catalyst of critical thinking, has done so once again.

In his essay, Kamhi raises points about the role of uncertainty balanced by a degree of certainty in conducting evidence-based practice (EBP). He notes advantages of the scientific process, which involves peer review and replication as forms of external validation, or alternatively, as indicators of flaws in scientific reasoning or experimental design. Kamhi also observes that external validation sources in science do not have a full parallel in clinical practice. Thus, clinicians must adopt a rational approach to clinical problem solving as compensation for the missing components, most particularly, external validation.

In this response, I first indicate my agreement with Kamhi’s primary thesis that acknowledgment of uncertainty is an important ingredient supporting both good science and good clinical practice.

UNCERTAINTY AS A PATHWAY TO GOOD QUESTIONS IN SCIENCE AND CLINICAL PRACTICE

My first point is an extension of Kamhi’s (2011) main thesis that the need to balance certainty and uncertainty in EBP requires a “theoretically agnostic” stance; instead, I would assign a particular role for systems theory as a metatheory guiding clinical practice in schools and would urge clinicians to remain aware of other theoretical frameworks that guide the approaches for which they are considering the evidence. The second is in counterpoint to Kamhi’s point that clinical practice is not amenable to self-correction; instead, I would note that external validation of outcomes is as critical to the clinical process as to the scientific process, and external evidence can be available if clinicians know how to seek it.

ABSTRACT: Purpose: This article offers a critical response to Kamhi’s (2011) essay regarding the need to balance certainty and uncertainty in evidence-based practice (EBP). Method: Points of concordance and discordance (counterpoints) between Kamhi’s essay and the author’s frames of reference were considered. Results: In agreement with Kamhi, a major role is outlined for clinicians to use questions strategically (i.e., acting on uncertainty) to prioritize intervention targets and select approaches that best fit the context and stakeholders’ values for purposes of planning, accomplishing, and evaluating change. The first counterpoint emphasizes a need for larger roles for theoretical frameworks involving systems theory and collaborative, contextualized approaches to assessment and intervention. The second notes opportunities for self-correction by using outcome data from relevant contexts outside of treatment sessions. Conclusion: Clinicians should capitalize on Kamhi’s ideas by working with other key stakeholders to make points of certainty and uncertainty explicit. By generating insightful questions that can guide the process of EBP and gathering evidence from broader outcomes, clinicians can gain external validation for the approach taken or for the need to consider alternatives.

KEY WORDS: evidence-based practice, questions in clinical practice, systems theory, social models, self-efficacy
conducting rational approaches to EBP. Just as scientists use uncertainty as an incentive to formulate questions about natural phenomena, clinicians use uncertainty to formulate questions about the best areas to assess and the most productive areas to target in intervention. In his essay, Kamhi focuses on decisions regarding choices of methods for pursuing intervention targets; he could have said more about pursuing uncertainties leading up to the selection of intervention approaches. This is a parallel of the scientist’s need to know which questions to ask. As prerequisite to choices about which clinical approaches to adopt, for example, clinicians need to ask good questions about which students to enroll for intervention and about which communication abilities to target.

In an essay titled “Induction, Deduction, and the Scientific Method,” biologist Rothchild (2006) also emphasized the need for scientists to ask good questions and to select different research methods for answering different questions. Rothchild observed, “The things scientists are curious about differ too much from one another for all of them to be studied according to the same or any set of rules or algorithms” (p. 4). To emphasize the importance of asking the right questions, Rothchild offered examples of scientific questioning that changed history. In conceiving penicillin, for example, “Fleming didn’t look at his moldy cultures and ask, ‘How can I get rid of these pesky molds?’ Instead he asked, ‘Why are there no bacteria near the molds?’” (p. 6). Similarly, Copernicus looked at the same evidence that millions of others had looked at for thousands of years. His genius (although viewed as heresy at the time) was that “by shifting his point of view from the earth to the sun and asking ‘Which of us is moving?’ he showed us our solar system” (Rothchild, 2006, p. 6).

Although somewhat less dramatic, speech-language pathology offers parallels in how new questions can change paradigms of clinical practice. For example, in recent years, shifts in thinking about the role of cognitive referencing have occurred as clinicians have stopped asking, “Who might benefit most from speech-language intervention?” (because their language age is significantly lower to nonverbal mental age) and have begun asking instead, “Who might need speech-language intervention most to benefit from school?” (whether or not there is a discrepancy between language and cognitive test scores) (Nelson, 2010). Other shifts in thinking about who qualifies for service delivery have come about through the dynamic assessment questions associated with response-to-intervention approaches. These are designed to identify children who are going to need more intensive and specialized instruction before they have a chance to fail in school, rather than being identified as having disabilities only after they have failed. What is special about questions that change paradigms or improve children’s lives? They require not only the willingness to seek clarity about unexplained phenomena, but also an openness to consider multiple perspectives and points of view, leading to insights that would not be seen when viewed from a traditional or singular position.

An important contribution of Kamhi’s essay (2011) is to highlight the need for clinicians, like scientists, to entertain uncertainty so they will be open to new ideas. Using uncertainty as a call to action, however, may be easier for some clinicians than others. Sorrentino and colleagues (e.g., Hodson & Sorrentino, 1999; Sorrentino & Roney, 2000; Sorrentino & Short, 1986) developed a theory of “uncertainty orientation” to explain basic differences in how people approach problem solving. According to this theory, most people fall at one end of the continuum or the other, meeting criteria as “uncertainty-oriented persons (those who strive to achieve clarity)” or “certainty-oriented persons (those who strive to maintain clarity)” (Sorrentino, Smithson, Hodson, Roney, & Walker, 2003, p. 132).

Applying this work to the practice of speech-language pathology in schools, an uncertainty-oriented clinician would be motivated to seek clarity and coherence. Such a person would be open to new evidence and ideas and would be well poised for using the forms of EBP recommended by Dollaghan (2007) and Kamhi (2011). On the other hand, a certainty-oriented clinician would have a high need to maintain clarity. Such a clinician might be more comfortable working with students with relatively straightforward and familiar difficulties, such as single-phoneme speech sound disorders, because they can be targeted with a set of known procedures in the controlled setting of the treatment room. It may take an extra dose of self-regulatory control (Bandura, 2007) for a certainty-oriented clinician to seek out and accept referrals for students with language/literacy learning disorders or with complex communication needs for whom there are more degrees of uncertainty. Such clinicians also might have to work harder to explore methods with classroom teachers to make their services more relevant to the general education curriculum.

Consistent with these hypothesized differences in uncertainty orientation, an important contribution of Kamhi’s (2011) essay is to encourage clinicians to contemplate their own comfort zones related to living with uncertainty. Clinicians also should seek to gauge the degree to which their clients express (or act out) willingness or resistance to change as part of the therapeutic process. Understanding a client’s need to maintain clarity and familiarity may influence an clinician’s attitude and values can be a critical part of the decision-making process.

Bandura (1997) proposed a social cognitive theory of self-efficacy based on the concept that uncertainty is unsettling and that most people are motivated to reduce uncertainty so they can gain a sense of control over the events of their lives. He further emphasized the importance of perceptions of self-efficacy in personal change based on belief in one’s capabilities to organize and execute a course of action required to achieve a particular goal and to persist in the face of obstacles or failures. In explaining his theory, Bandura emphasized the need for intentionality in mobilizing one’s thought processes and attempting actions.

Bandura (2007) criticized research that sought to oversimplify application of his theory without considering the intentional thought processes involved in mobilizing oneself to action. It is not lack of will, Bandura argued, that makes it difficult for an alcoholic, for example, to put down the glass when handed a drink (even though the simple motor movement to do so is clearly within the person’s capabilities). Rather, the important variable, and one more amenable to intervention, is inadequate belief in one’s self-regulatory efficacy and coping skills “to apply them consistently in the face of difficulties, stressors and competing attractions” (Bandura, 2007, p. 647). Relative to the current discussion, clinicians similarly need to develop intentional strategies to be sensitive to setbacks and to be able to set proximal goals and proceed in the face of adversity. Likewise, they need confidence in their efficacy so they can help students develop similar levels of certainty about their self-efficacy to change.
the areas of communicative behavior that are of concern to them, their parents, and their teachers.

Questions About the Role of Theory in EBP as well as Science

This brings me to my first counterpoint to Kamhi’s (2011) essay. It relates to his suggestion that the search for evidence in EBP is, by nature, theoretically agnostic. Kamhi explains the reason for this being that the search for the approach with the best empirical evidence should focus on clinical outcomes rather than theoretical coherence. He also notes, appropriately, that human beings have a tendency to ignore or discount evidence that counters what they already know. This could be a major problem if one is tied too emotionally to a particular theory. Making a similar point regarding the scientific process, Rothchild (2006) warned, “Becoming emotionally attached to one’s theory as though to a beloved possession is extremely dangerous, for it can even lead to the temptation to fudge the data” (p. 7).

The caution about being blinded by dogmatic adherence to a particular theory is important, and the application of the term “theoretically agnostic” is interesting. My counterpoint is that best practice in the educational systems of schools cannot be atheoretical. Rather, it must be situated within a systems theory perspective if the planning process is to be collaborative and if the intervention targets and approaches are to be contextually relevant to the general education curriculum, as required by the Individuals With Disabilities Education Improvement Act (IDEA, 2004). A second part of this counterpoint is that clinicians cannot afford to be theoretically agnostic when considering individual methods. Rather, they must be explicitly aware of the theoretical positions that undergird any of the clinical approaches they identify in a search of evidence-based literature on clinical practice.

Systems theory, which is often attributed to the German biologist, von Bertalanffy (1968), is a metatheory that can be explained as three sets of contrasting principles (Nelson, 2010). In the first set, the principle that a whole is more than the sum of its parts is balanced by the principle that any system can be analyzed into its component parts. Applying these principles, school-based clinicians would recognize the need to analyze which speech-language-communication systems a child must mobilize to function well in the context of a general education system. Simultaneously, the clinician must remain aware of the school’s broader politicosocial systems, as well as the child’s home-culture and family systems, which may be more or less well matched to the expectations of the mainstream culture and school system.

In the second set of system theory principles, the principle of homeostasis (resistance to change) is balanced by the principle of morphogenesis (i.e., change is inevitable). Awareness of the principle of homeostasis might lead clinicians to seek best methods for helping students attempt to change established but maladaptive communicative behaviors. Awareness of the balancing principle of morphogenesis might lead clinicians, simultaneously, to avoid the negative spiral of failure by engaging multiple members of the child’s family and school system in identifying intervention targets and supporting positive change.

In the third set of system theory principles, the principle that causal patterns are circular rather than linear is balanced by the principle that subsystems have boundaries that must be respected. Applying these principles, clinicians would not expect to observe simplistic causal effects by implementing an intervention approach that targets discrete skills in isolation, but would recognize complex causative factors and would work with teachers to identify the targets and contexts of intervention that can facilitate positive change. At the same time, clinicians would respect the boundaries of teachers’ classrooms and express awareness of the many demands that teachers face, yet would communicate willingness to work with teachers to help their students develop the communication skills they need to achieve curricular goals.

The “counterpoint” between my emphasis on theoretical thinking and Kamhi’s (2011) focus on rational thinking is probably more semantic than essential. That is, my system theory view of people’s (e.g., clinicians’, students’, families’, and teachers’) roles in bringing about systemic change are similar to Kamhi’s emphasis on a practitioner’s “epistemology (belief systems) and propensity for rational thinking.” With Kamhi, I see a major role for rational thinking on the part of the practitioner. By placing clinical decision making in a systems theory framework, however, I emphasize the need for active contributions in planning on the part of the student and significant other stakeholders as well. It is the students and stakeholders who set the social-communicative and language-learning contexts (i.e., external systems) for children. It is their views, representing evidence of client values, that must be incorporated to conduct EBP in the deeper, richer sense (Dollaghan, 2007; Kamhi, 2011; Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000).

Clinical approaches based in a system theory framework of validity and relevance are more consistent with some components of the scientific method than others. As illustrated in Figure 1, models of the classical scientific process bear more resemblance to the medical model of clinical practice than to the social model (both described in the World Health Organization’s International Classification of Functioning, Disability, and Health [WHO-ICF], 2001). Clinical processes that are set within a systems theory framework open the door for inductive, as well as deductive, reasoning, which is illustrated by the social model in the bottom diagram in Figure 1. Roles of inductive and deductive reasoning in science (and clinical practice) are a matter of debate. Rothchild (2006) wrote his essay partially in response to Nobel prize–winning author Medawar (1996) who, according to Rothchild, “claimed that induction, in contrast to deduction, had no place in science” (p. 1).

The classical scientific processes of deductive reasoning involve the formation and testing of hypotheses based on theory, then using inference to reason from generalizations to particulars and testing whether the findings are consistent with theoretical predictions (Rothchild, 2006). This implies a fairly straightforward and linear form of associative, if not causal, reasoning within the scientific method, as illustrated in the top diagram in Figure 1. Up to this point, the scientific deductive model bears a strong resemblance to medical models of clinical practice in which clinicians start with a diagnostic hypothesis from which they deduce likely areas of impairment and target them in intervention using treatments that have been shown to be efficacious for children with such a diagnosis. Consistent with the medical model, Kamhi (2011) notes that practitioners “recognize that it is their clinical decisions and choices that determine patient outcomes” (p. 61). I do not disagree with Kamhi’s point about practitioner responsibility for decisions. Rather, my counterpoint regarding the need for decision making to be guided by multiple informants
emphasizes that, within a systems theory framework, participants must share ownership for goal setting and target selection as well as for implementing the intervention.

The first box in the social model (bottom diagram in Figure 1) lists areas that extend beyond diagnosis and description of impaired communication abilities by the clinician. It represents input from other stakeholders regarding areas of functional limitation and communicative need and of communicative participation and opportunity. Such components are part of the social model framework of the WHO-ICF (2001). To augment the communication impairment diagnostic questions, which are part of the medical model, questions are generated based on the communication needs and participation models, which are both components of the social model. Thus, clinicians bring other stakeholders actively into the decision-making process. This includes gathering input from others who are in the best position to know what abilities must be targeted for the student to function well in academic and social contexts (communication needs) and whether those systems are adequate to support the student’s participation (communication opportunities) (Nelson, 2010).

External validation of clinical choices (to be considered later).

Researchers and clinicians who do not recognize and reflect on the theories that drive decision making, especially in the era of EBP, may find themselves like the man looking for his keys. “So, this is where you dropped them?” she asks. “No,” he responds, “I dropped them over there in the bushes, but this is where the light is.” A comparable example from EBP is when clinicians look for evidence-based methods only among programs and approaches that have been studied in randomized controlled trials (RCTs), or have received a “seal of approval” by a research clearinghouse, but fail to consider the views and values of those in the current situation who know the child best. What is more available is not always more relevant.

As Kamhi (2011) emphasizes, EBP is not inherent in a particular clinical approach for which the highest quality research evidence has been accumulated (although that is a piece of the puzzle). Rather, it involves a multifaceted process that draws on evidence of at least three types (e.g., Dollaghan, 2007; Sackett et al., 2000), of which selection of an approach with high-quality research evidence is only one (the other two being clinician expertise and stakeholder preferences and values). Seeking and integrating components from all three sources is more like searching among the bushes for the keys than in the light. To do so, clinicians must ask questions such as “What outcomes are most important to the child and his or her family and teachers and will make the most difference?” A focus on desired outcomes to fit a particular functional need is different from looking for an intervention approach to “fix” an impaired communication skill. Better answers follow better questions, even though they may seem more complex at the time. Developing a picture of important contexts and current child functioning within them is an ongoing process. It also involves asking “What must the child learn

Figure 1. Comparison of scientific, medical, and social models of problem solving.

Scientific process

- Use theory to inform research questions
- State hypothesis
- Conduct experiment or controlled observation
- Analyze data
- Report results and conclusions
- Dissemination
- Peer review
- Modify questions, methods, and sometimes theories
- Critiques

Clinical process [medical model]

- Diagnose impairment in client
- Select areas to target
- Seek evidence in literature about best methods
- Make decisions
- Implement treatment: Measure & report results
- Then what? (No external validation)

Clinical process [social model]

- Identify: -Impairments -Needs -Opportunities
- Student Input
- Teacher input
- Parent Input
- Define mutual goals and collaborate to prioritize contexts and targets
- Seek evidence in literature about best methods for each component of program
- Implement collaborative approach to intervention
- Measure outcomes in natural contexts
- Modify targets, contexts, approach
- Stakeholders evaluate: provide external validation

84 LANGUAGE, SPEECH, AND HEARING SERVICES IN SCHOOLS • Vol. 42 • 81–87 • January 2011
to do differently to function more successfully in contexts of concern?" and "How should those contexts be modified to support new learning and successful participation?"

Situating one’s clinical practice in a systems theory framework changes the types of questions individualized education program (IEP) teams will ask. Questions of context-based communication assessment (regarding demands of key contexts and current functioning within them) and intervention (regarding targets for closing gaps in functioning and modifying contexts to support change) must be asked recursively and considered collaboratively (Nelson, 2010). As required by both IDEA (2004) and the No Child Left Behind Act (2001), choices of intervention targets and approaches also must be evaluated by considering external standards and authentic outcomes. This brings me to the final counterpoint.

Scientific Thinking and External Validation of Clinical Practice

In comparison with the diagram of the scientific process, which shows how external validation sources influence scientific progress, the middle diagram in Figure 1 illustrates Kamhi’s (2011) point about the absence of similar sources of external validation in clinical practice. Decisions to select new targets and methods may be based on therapeutic results, but they must come from within this relatively closed system. Although I agree with Kamhi that there is no exact clinical parallel to the scrutiny paid by scientific reviewers as a form of external validation, I would add that this does not mean that no forms of external validation are available to clinicians. The bottom diagram in Figure 1 illustrates how a social model of clinical practice might intentionally incorporate forms of external validation.

Kamhi (2011) hints at aspects of the social model of the clinical process when he states that “the dynamic and fluid nature of clinical practice makes it very difficult to maintain the experimental controls necessary to do science” (p. 61). In the same section, which Kamhi titled, “Why Clinical Practice Is Not Scientific,” he adds, “Science can never be spontaneous.” To this, my counterpoint is that, although not completely disagreeing with Kamhi, the divide may not be as wide as he indicates.

The statement about the lack of spontaneity in the scientific method is true if one confines the definition of the scientific method to deductive processes within the boundaries of the controlled experiment. That leaves out all of the inductive thinking based on open-minded observation of multiple pieces of evidence, which can lead to spontaneous new connections of ideas, generating new theories (some of which become the “eurekas” of science). In explaining how such inductive processes can be complementary to traditional deductive ones rather than competitive, Rothchild (2006) wrote:

Observations are the meat and potatoes of science. We start a research project with observations made either in the field, the library, or the laboratory. How these observations are collected, classified, interpreted, and used as the basis of theorizing (from a hunch to a eureka) is, more or less, what science is about. … The trick is to have this mindset simultaneously with one oriented toward the specific goal of our investigation, so that, while searching for information to satisfy our goal, we are also on the alert for the unexpected, our antennae always ready for the odd-ball fact that may even change the course of our investigation. (pp. 4–5)

In agreement with Kamhi (2011), and as illustrated in the diagram of the scientific process, the scientist who can design a tight experiment with controls for threats to external and internal validity is seeking a piece of a puzzle that can yield a fairly straightforward answer, filling a gap in the knowledge base. The scientist then can apply inferential statistics to calculate probabilities about the degree of confidence that the result is consistent with the theory. The convention is to allow no more than 5% uncertainty that the finding is a fluke that would be unlikely to reoccur if it were tested again under similar circumstances.

As illustrated in the medical model, clinicians also form hypotheses about their clients and the nature of their deficits. For example, a school-based clinician might apply deductive reasoning to explore a child’s awareness of phonology and phoneme–grapheme relationships as a possible explanation for why a child is struggling to learn to read and also has difficulty pronouncing multisyllabic words. Such a hypothesis might be tested both with a formal test of phonemic awareness and with dynamic assessment procedures. This might include asking the child to read aloud independently and then strategically framing cues about sound–symbol associations to gauge levels of the child’s knowledge of the associations and his or her ability to apply them when scaffolded to integrate knowledge that otherwise might be fragmented. Without the addition of inductive data gathered from multiple sources, however, the clinician might have difficulty evaluating the importance of targeting such an ability when other problems might be of more concern to the child’s teacher and family or how this intervention might fit within the child’s total program.

I would agree with Kamhi (2011) that the clinical process is, of necessity, too complex and too much in need of individualization to be submitted to the tight controls of the clean experiment. Simplistic views of EBP, as discussed by Justice (2008) and noted by Kamhi, can lead to a misguided quest to identify the behavioral equivalent of the single best “pill” (i.e., the approach with the best research support) for “fixing” a particular area of deficit. Such an approach grows out of a communication impairment model that focuses on fixing areas of discrete deficit within a particular child, overlooking the complex, contextualized aspects of human communication that vary with the contexts in which the child must function. It also assumes a linear causal relationship between problems and solutions. It was such simplistic models of behavioral change that Bandura (1997) sought to replace with his model of triadic reciprocal causation, which incorporates roles for personal factors (e.g., self-efficacy) as well as targeted behaviors and environmental events (e.g., the intervention approach), all of which interact and influence each other bidirectionally.

Human communication needs are too complicated and interactive with systems outside the child for simplistic cause–effect explanations to apply. Even if the intervention literature were more extensive than it is, finding a meta-analysis or single RCT that perfectly fits the many variables associated with the internal and external communication systems of a particular child would be highly unlikely. Perhaps practice-based evidence (PBE), as Kamhi (2011) suggests, will fill this gap. Consortiums of practitioners might form to answer bigger questions, such as questions about the effects of varied service delivery models to correct developmental speech sound disorders or other questions that might be answered in ecologically valid settings with moderate controls.

One of the many challenges facing such multisite studies, however, would be to institute enough controls over the IEP process to qualify as an RCT. Because IEPs are required by legislative regulation to be individualized (IDEA, 2004), to assign children randomly to different arms of an RCT would be problematic. Nevertheless, this could be a direction worth pursuing. For example, PBE studies
could be designed to address such questions as whether 5-min individual pull-out sessions conducted daily or even twice daily could result in faster correction of single-phoneme articulation errors than the frequently adopted service delivery model of small-group sessions provided twice weekly for 30 min each. Clinicians should maintain their uncertainty, as Kamhi (2011) suggests, until they can gain access to empirical evidence that tests such hypotheses. Such studies cannot be conducted, however, without the participation of school-based clinicians, despite their ridiculously busy schedules. Who knows what spontaneous “eurekas” might flow from such collaborative enterprises?

The other element of this counterpoint is that external forms of validation of one’s clinical approaches may be more available than Kamhi (2011) implies. As illustrated in the bottom diagram of Figure 1, multiple stakeholders can be actively engaged in the process of monitoring change and reporting data regarding outcomes that are observable beyond the treatment session. By seeking such validation (and being open to multiple possible explanations, if it is not found), clinicians can avail themselves of a clinical alternative to the scientific self-correction mechanisms of peer review. It requires courage to seek external unbiased validation of whether one’s work makes a difference. It also requires a high level of self-efficacy to persist when contrary evidence is encountered. That includes searching for the problem in parts of the system outside the child (e.g., the approach, the dosage/intensity, the context) as well as within.

The other obvious flaw in this approach from a scientific perspective is that those evaluating the student’s progress (the stakeholders) would have, by definition, a “stake” in the outcomes. Moreover, teachers, parents, and students could not reasonably be blinded to the conditions of the student’s intervention program because they would have been actively involved in its planning and implementation. So, in this case, I would agree with Kamhi (2011) that the clinical process differs in significant ways from the scientific process: The clinical process is biased toward positive change and involves participants who are (or should be) well aware of its goals, whereas the scientific process attempts to control for bias and to keep the participants blinded from the experimenter’s hypothesis. On the other hand, some forms of external validation are less susceptible to such threats. They include the student’s performance on general education classroom measures that are separate from the clinical process, or the student’s increased ability to meet state standards set for students at the child’s grade level. Such relatively more objective forms of external validation should be built into IEPs in more than a trivial way. I realize that this may be a controversial recommendation. I am as concerned about the overtesting of American schoolchildren as anyone. On the other hand, clinicians should be aware of the types of abilities that are measured by the high-stakes testing of schools. This is different from teaching to the test. The essence of this recommendation for seeking external validation is for IEP teams to ask themselves, “How will we know that this plan is making a difference?”

**Conclusion**

Kamhi’s (2011) essay points out the need for clinicians to balance certainty with uncertainty in clinical activity. For me, his essay highlights important aspects of EBP that are sometimes overlooked. It made me think more deeply about how the clinical process might mirror the scientific process, but also how it might be distinguished from it. In this response, agreeing with Kamhi but extending his point, I have emphasized the role that uncertainty must play in helping clinicians ask good questions that are informed by the questions of others who know and care about the child.

Additionally, this article focused on two counterpoints that suggest to me that scientific and clinical processes are not as far apart as Kamhi (2011) claims. Like Kamhi, I see EBP as involving much more than searching the literature for the approach with the best evidence for addressing a particular problem. What I do not see is that this search can or should be theoretically agnostic. Thus, my first counterpoint is that clinicians who are working within school systems must situate their decision making within a systems theory framework. Doing so is essential to meet the policy-driven requirements for their work to help children function in the general education curriculum and meet standards that are established at state- and districtwide levels.

My second counterpoint is that scientific and clinical processes are not as far apart as Kamhi’s (2011) essay would imply. This point is based on two subpoints. The first is that clinicians, like scientists, can maintain a balance not only between certainty and uncertainty, but also between deductive and inductive approaches to solving problems. The second is that external forms of validation for clinical approaches taken with students in school are not as unavailable to clinicians as Kamhi’s essay would imply. In addition to the direct feedback from stakeholders about the degree to which a student demonstrates new communication skills in curricular environments, relatively more objective data can be gathered in the form of curriculum-based measures and observations.

An even more affirming indicator that a school-based clinician’s work is making a difference in the lives of students on his or her caseload is when teachers pass the word from one to another about the benefits of working with that clinician. That is the height of external validation. In fact, receiving requests from multiple classroom teachers to work with their students could be considered the Nobel prize for school-based service delivery.

In conclusion, Kamhi’s (2011) essay raises many thought-provoking points. In agreement with his point about the need to entertain uncertainty to be open to new ideas and evidence, I would add only a greater emphasis on where clinicians should focus their uncertainty, the types of questions they should ask, and who they should involve in the question-asking enterprise. My counterpoints relate to the need to use a systems theory framework that is more consistent with a social model than a medical model of clinical practice. My second counterpoint is that the gap between scientific and clinical processes may be narrower than Kamhi suggests—both because scientists do benefit at times from creative inductive, relatively “spontaneous” processes and because clinicians can seek forms of relatively objective external validation for their practices if they know where to look.

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Contact author: Nickola Wolf Nelson, Western Michigan University, 1903 West Michigan, Kalamazoo, MI 49008-5355.
E-mail: Nickola.nelson@wmich.edu.