For decades, our profession’s scientists have argued that scientific thinking is an essential complement to clinical thinking (e.g., Ringel, 1972; Costello, 1979; Perkins, 1985). Kamhi (1984) is sympathetic but suggests that science’s most important safeguards may be impossible to implement in clinical practice (Kamhi, 2011). He is concerned that scientists are fallible, clinicians are fallible, and, in fact, that all of us are fallible because we develop erroneous beliefs and make wrong decisions not because of the absence of thinking but because of flaws in our reasoning process (Halpern, 1998). Kamhi (2011) argues, however, that the fallibility of a scientist’s thinking can be minimized by the presence of the larger scientific community and its questioning attitude, willingness to embrace disconfirming evidence, and openness to change. In contrast, Kamhi (2011) feels that the fallibility of a clinician’s thinking is not as amenable because the self-corrective mechanisms of science are most effective at the community level, not the individual level at which most clinicians operate.

Kamhi (2011) hopes that evidence-based practice (EBP) will offset the fallibility of clinicians’ thinking. But, he is concerned that the complex integration of different kinds of evidence will make this difficult to achieve. Although Kamhi suggests that a case-based model may guide clinicians on how to weigh evidence and justify clinical choices, in the end, he believes that clinicians’ thinking will probably be influenced more by their personal beliefs and thinking style. Ultimately, Kamhi concludes that the only safeguard against clinicians’ potentially unbalanced decisions will be rational thinking in the clinic.

I believe that Kamhi (2011) is correct in his conclusion that rational—or critical—thinking is an essential clinical skill and important complement to EBP in our profession. What is not clear, however, is what clinicians need to know so they can think critically within EBP. In what follows, I will sketch the core information that I believe is necessary for clinicians to know in order to become more balanced thinkers. I also suggest that critical thinking should be a required skill of our professional training programs.

What Is Critical Thinking and How Is It Relevant to EBP?

Critical thinking is applied rationality. It is a way of thinking that is based on principles of rationality (Nickerson, 2008). Critical thinking has been conceptualized as a set of skills that people can learn and apply in their everyday or professional lives. In fact, critical thinking and rationality are terms that are sometimes used interchangeably (e.g., Stanovich, 1999).
Critical thinking has its conceptual roots in education, philosophy, and psychology, and its definition varies depending on disciplinary focus, but thematically, these definitions are very similar (Jenicek & Hitchcock, 2005). A working definition from psychology that is instructive for our purposes was offered by Wade and Tavris (2008, p. 7):

Critical thinking is the ability and willingness to assess claims and make objective judgments on the basis of well-supported reasons and evidence rather than emotion or anecdote. Critical thinkers are able to look for flaws in arguments and to resist claims that have no support. They realize that criticizing an argument is not the same as criticizing the person making it, and they are willing to engage in vigorous debate about the validity of an idea. Critical thinking, however, is not merely negative thinking. It includes the ability to be creative and constructive—the ability to come up with alternative explanations for events, think of implications of research findings, and apply new knowledge to social and personal problems.

As this definition suggests, there are several features of critical thinking that are relevant to clinical decision making in EBP—the thinker’s intention to engage in an evaluative process that is based on a set of skills that results in justifiable decisions that can be applied for promoting human change. Jenicek and Hitchcock (2005, p. 17) also pointed out that critical thinking is relevant to clinical accountability by adding that “critical thinking…is about ways of deciding and conveying well to others what we believe and what we are doing or intend to do, not for our personal intellectual satisfaction, but for the full benefit of the patient and the community.”

What Kinds of Skills Are Involved in Critical Thinking?

Like definitions of critical thinking, the cognitive skills that comprise critical thinking vary depending on the theoretician’s framework (Moseley et al., 2005). Nonetheless, there are three sets of skills discernable across most approaches, and their goals and objectives can be characterized in terms of interpretative, evaluative, and metacognitive skills (Fischer & Spiker, 2000).

The goal of interpretation is to determine how much you understand about the argument that will be the focus of your thinking. Before going further, it is important to appreciate that an argument in a critical thinking context is not a heated exchange or bitter dispute in the everyday sense; instead, it is conceptualized as an interlinked set of components that consists of a question or controversy, the conclusion or answer to that question or controversy, and the reasons that support that conclusion (Brownie & Keeley, 2010).

There are three steps in interpreting an argument. The first is to identify the argument, such as examining the value of a particular claim (e.g., a recommendation from a colleague to use a particular treatment) or considering several alternative outcomes and determining the optimal one (e.g., deciding which management approach is the best for your client). The second step is to identify the reasons that are available for supporting the argument. For example, are your colleague’s reasons for recommending a treatment approach based on research evidence, personal experience, and/or client information? The third step is to assess the available information for clarity; in other words, to consider if there are any ambiguous terms or phrases in the argument or if there are unstated biases or assumptions in the evidence that might affect your interpretation of the argument. For example, if your colleague claims that a treatment approach is the “best available,” you should recognize that these are terms that can be easily misconstrued if they are not defined clearly.

The goal of evaluation is to determine how acceptable you believe the argument is in view of the reasons provided. The first step is to evaluate the quality of the inferences in moving from the reasons to the argument’s conclusion. Or to put it another way, are the reasons for supporting the credibility of the claim relevant and plausible or are they mistakes in reasoning that are commonly referred to as fallacies? For example, are the reasons for a treatment claim based more on the charm or intellectual authority of the person making the claim or on the believability of the actual evidence? The second step is to examine the quality of the evidence. Different kinds of evidence, such as research, personal experience, and client information, have different strengths and weaknesses in terms of their credibility and the degree to which they are biased. Thus, the evidence is weighed accordingly, depending on its importance and value to the final outcome. For example, is this the best treatment for your client given the credibility of the research evidence you have considered, the breadth and depth of your own clinical experience, and the perceived needs of your client? The third step is to judge the overall quality of the argument. In other words, should you accept this recommendation to administer this treatment or should you consider other alternatives?

Metacognition refers to awareness and analysis of one’s own thinking (Nickerson, Perkins, & Smith, 1985); thus, the goal of metacognitive skills in the context of critical thinking is to monitor and evaluate the quality of your thinking during the process of interpreting and evaluating the argument. The first step is to monitor the relevancy of your thinking as you interpret and evaluate the argument. For example, do you understand clearly and completely what the issues are, or is your understanding superficial and incomplete? The second step is to be aware of and check your own biases and assumptions relative to the argument and to monitor how they might color your interpretation and evaluation of the argument. For example, do you favor a point of view that might influence your willingness to evaluate a treatment claim fairly—and most importantly—do you know why you favor that point of view and have you carefully scrutinized the evidence, both pro and con, that you believe supports it? The third step is to deliberately apply and monitor thinking strategies that will provide the most effective evaluation of the argument. For example, has your search for evidence been thorough enough, have you considered disconfirming evidence, and have you considered alternative perspectives—for example, how the treatment might be perceived by the client in terms of costs and benefits?

How Are Thinking Dispositions Related to Critical Thinking?

Critical thinking is viewed as more than just a set of skills. Most theories of critical thinking emphasize the importance of thinking dispositions, or cognitive styles, that refer to one’s attitude toward belief, and especially one’s attitudes toward forming and changing beliefs (Stanovich, 2009).

Several thinking dispositions are believed to be moderators of critical thinking (Stanovich, 1999)—that is, they do not directly affect your ability to implement critical thinking; rather, they influence the direction and strength of that thinking (Nickerson, 2008). Open-mindedness, for example, refers to your willingness to seek out and consider new evidence, new ideas, and new possibilities.
Complementing this is fairmindedness, which means that you will conduct an unprejudiced examination of evidence that might question your beliefs and provide an impartial hearing of a viewpoint contrary to your own. Reflectiveness refers to your willingness to allow sufficient time to gather relevant evidence in order to carefully evaluate the issues rather than making hasty judgments or completely embracing the first seemingly satisfactory answer. And as a final example, there is counterfactual thinking, which refers to your willingness to ponder what might, could, or would happen differently if the facts of a claim were considered under different conditions or from a different perspective.

If you are unsure why these four examples of thinking styles are considered moderators of critical thinking, consider their opposites—close-minded, biased, heedless, and rigid. Thinking styles such as these do not necessarily mean that you would not engage in thinking; rather, it means that your thinking will be directed toward maintaining your current beliefs and adhering to certain ways of acting; that is, doing whatever it takes to maintain the status quo and your preferred way of doing things, even when objectively it may not be the best option for you or your clients.

How Does Our Thinking Go Wrong?

Cognitive scientists have documented a wide variety of human thinking errors that all of us are susceptible to and that often play a role in making decisions and developing our beliefs. Pohl (2004) described three defining characteristics of these errors: (a) They typically lead to judgments that are different from the optimal choice, or they result in perceptions or memories that are dissimilar from objective reality; (b) they happen without our explicit awareness, which means they happen so automatically that we do not realize they are occurring; and (c) because of this, they are often difficult to avoid. But, if we are apprised of their existence or instructed how to think differently than normal, then usually these errors can be reduced or eliminated.

Kida (2006) provided a useful shorthand for summarizing some of the most common thinking errors: (a) We are more likely to be persuaded by personal experience and anecdotes than by objective, statistical evidence; (b) we prefer evidence that supports our beliefs and ignore or downplay evidence that questions them; (c) we are prone to ignore the role that chance events play in our everyday lives and, instead, erroneously assign them causal status; (d) we believe we see the world as it is, failing to appreciate that our senses can be deceived and that our expectations can shape our perceptions; (e) we oversimplify our thinking, such that we fail to look beyond the obvious, overgeneralize, and engage in either-or thinking—when multiple potential answers are more likely; and (f) we believe that our memories are faultless, when in fact they are imperfect because they are often readily influenced by our current beliefs and expectations and are highly suggestive to questioning.

How Will Clinicians Learn to Think Critically?

I agree with Kamhi (2011) that critical thinking should be viewed as a goal and not a by-product of learning. But, he does not describe how it should be learned. I would suggest that the most direct way to learn critical thinking and understand its relevance to EBP is to teach it that way—and to do it early when clinicians are students in our professional training programs. The core information that was just outlined above, for example, comprises the content of an undergraduate course on critical thinking in the helping professions that has been offered at the University of Georgia for the past 3 years and will soon become a required course for all of our speech-language pathology majors (course syllabus available upon request). As our profession moves forward with EBP, perhaps we will eventually recognize the importance of critical thinking as a core skill of a 21st-century education (see, for example, Obama, 2009) and require it of all of our training programs.

Conclusion

Research in psychology tells us that our often biased positive self-assessments (Gilovich, Epley, & Hanko, 2005) can sometimes lead us to believe that because we see ourselves as possessing above-average intelligence and having the best intentions, we cannot possibly do any harm. But, this is where we may be wrong. Intelligent, well-intentioned people do foolish things, and sometimes, the things they do may be reckless or self-serving (Stanovich, 2009). How do we protect ourselves and our clients from foolish beliefs and mistakes? The first step is to engage in EBP, a much-welcomed addition to our profession. The second step that Kamhi (2011) has proposed in his argument, and that I have elaborated on here, is to train our current and future practitioners to think, but most importantly, to think critically.

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