Critical Thinking and Evidence-Based Practice

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What is evidence-based practice (EBP)?
- EBP is integration of clinical expertise, best available external and internal evidence, and client/stakeholders' perspectives and expectations (https://www.asha.org/research/ebp/)

What is critical thinking?
- "Critical thinking is reasonable, reflective thinking focused on deciding what to believe or do" (Ennis, 2003, p. 295)

What are its components?
- Interpretation
- Evaluation
- Metacognition (Finn, 2011; Finn et al., 2016)

Interpretation:
- Goal: How much do you understand about the clinical issue that will be the focus of your thinking?

Evaluation:
- Goal: How acceptable do you believe diagnosis or treatment claim is in view of the reasons to support it?

Metacognition:
- Goal: Have you monitored and evaluated the quality of your thinking while interpreting and evaluating the claim?

Why is critical thinking an essential complement to EBP?
- Need to manage and evaluate an expanding and evolving body of complex knowledge
- Research shows smart, good-intentioned people make foolish decisions & hold false beliefs
- Essential complement to evidence-based practice, especially in person-centered context (Gupta & Upshur, 2012)
- Considered core competency for interprofessional education and practice

How can critical thinking provide a framework for EBP?
- Rationality provides conceptual framework for understanding critical thinking
- Following model is based on this framework
- Rationality is also a guiding principle of evidence-based practice (Rousseau & Gunia, 2016)

Model of critical thinking for evidence-based practice
- Based on Cognitive Processes and Individual Factors

Two Types of Cognitive Processes (Evans & Stanovich, 2013)
- Type 1: Autonomous Processes
- Type 2: Controlled Processes

Type 1 Processes
- Based on cognitive processes primarily developed via overlearned associations and pattern recognition

Type 2 Processes
- Based on controlled, relatively conscious coordination of inferences to serve some purpose or goal (Moshman, 2015)
- Critical thinking is an example of Type 2 process (Stanovich, 2010)

Individual factors influence Type 1 and 2 cognitive processes
- Consisting of:
- Thinking Dispositions
- Education
- Expertise
- Affect
- Experiential Consequences

Thinking dispositions:
- Essential complement to critical thinking skills (Ennis, 1962)
- Awareness and motivation to engage in critical thinking (Perkins et al., 1993)
- Metacognitive ability associated with disposition that moderates quality and direction of one's thinking
- Evidence suggests thinking dispositions are:
- Unique predictors of individual ability to critique arguments (Stanovich & West, 1997, 1998)
- Correlated with critical thinking skills and related to ability to minimize cognitive biases (West et al., 2008)
- Relevant to helping professions and evidence-based practice (Krupat et al., 2011; Papp et al., 2014)

Education:
- Includes:
- Breadth and depth of acquired knowledge
- Knowledge of critical thinking skills
- Knowledge of cognitive biases

Expertise:
- Based on knowledge and experience in given setting
- Expertise improves over time as result of various factors (Tracey et al., 2014):
- Critical thinking skills
- Accurate feedback on client progress
- Deliberate practice

Affect:
- Includes mood or emotion that influences decision-making (Hogarth, 2001)
- Evidence suggests that emotion and decision-making go hand in hand (Lerner et al., 2015)

Experiential consequences:
- Consists of cognitive and affective experiences of engaging in critical thinking (Fischer et al., 2000)
- Consequences include:
- Desired outcome = positive experience (Halpern, 2014)
- Time and effort = physical energy (Masicampo & Baumeister, 2008)
- Challenges cherished views = cognitive dissonance (Brookfield, 2008)

References

Brookfield, S. D. (2005). Overcoming impostorship, cultural suicide, and lost innocence: Implications for teaching critical thinking in the community college. *New Directions for Community Colleges, 2005*(130), 49-57.

Ennis, R. H. (1962). A Concept of Critical Thinking. *Harvard Educational Review, 32*(1), 81-111.

Ennis, R. H. (2003). Critical thinking assessment. In D. Fasko (Ed.), *Critical thinking and reasoning: Current research, theory, and practice* (pp. 293-313). Cresskill, NJ: Hampton Press.

Evans, J. S. B. T., & Stanovich, K. E. (2013). Dual-Process Theories of Higher Cognition: Advancing the Debate. *Perspectives on Psychological Science, 8*(3), 223-241. doi:10.1177/1745691612460685

Finn, P. (2011). Critical thinking: Knowledge and skills for evidence-based practice. *Language, Speech, and Hearing Services in Schools, 42*(1), 69-72. doi:10.1044/0161-1461(2010/09-0037)

Finn, P., Brundage, S. B., & DiLollo, A. (2016). Preparing our future helping professionals to become critical thinkers: A tutorial. *Perspectives of the ASHA Special Interest Groups, 1*(10), 43-68. doi:10.1044/persp1.SIG10.43

Fischer, S., & Spiker, A. (2000). *Application of a theory of critical thinking to Army command and control*. Retrieved from Alexandria, VA:

Gupta, M., & Upshur, R. (2012). Critical thinking in clinical medicine: what is it? *Journal of Evaluation in Clinical Practice, 18*(5), 938-944. doi:10.1111/j.1365-2753.2012.01897.x

Halpern, D. F. (2014). *Thought and knowledge: An introduction to critical thinking* (5th ed.). New York, NY: Psychology Press.

Krupat, E., Sprague, J. M., Wolpaw, D., Haidet, P., Hatem, D., & O'Brien, B. (2011). Thinking critically about critical thinking: ability, disposition or both? *Medical Education, 45*(6), 625-635. doi:10.1111/j.1365-2923.2010.03910.x

Masicampo, E. J., & Baumeister, R. F. (2008). Toward a Physiology of Dual-Process Reasoning and Judgment: Lemonade, Willpower, and Expensive Rule-Based Analysis. *Psychological Science, 19*(3), 255-260.

Moshman, D. (2015). *Epistemic cognition and development: The psychology of justification and truth*. New York, NY: Psychology Press.

Papp, K. K., Huang, G. C., Lauzon Clabo, L. M., Delva, D., Fischer, M., Konopasek, L., . . . Gusic, M. (2014). Milestones of Critical Thinking: A Developmental Model for Medicine and Nursing. *Academic Medicine, 89*(5), 715-720 710.1097/ACM.0000000000000220.

Perkins, D. N., Jay, E., & Tishman, S. (1993). Beyond Abilities: A Dispositional Theory of Thinking. *Merrill-Palmer Quarterly (1982-), 39*(1), 1-21. doi:10.2307/23087298

Rousseau, D. M., & Gunia, B. C. (2016). Evidence-Based Practice: The Psychology of EBP Implementation. *Annual Review of Psychology, 67*(1), 667-692. doi:doi:10.1146/annurev-psych-122414-033336

Stanovich, K. E. (2010). *Decision making and rationality in the modern world*. New York: Oxford University Press.

Stanovich, K. E., & West, R. F. (1997). Reasoning independently of prior belief and individual differences in actively open-minded thinking. *J Educ Psychol, 89*. doi:10.1037/0022-0663.89.2.342

Stanovich, K. E., & West, R. F. (1998). Individual differences in rational thought. *Journal of Experimental Psychology: General, 127*(2), 161-188.

Tracey, T. J. G., Wampold, B. E., Lichtenberg, J. W., & Goodyear, R. K. (2014). Expertise in psychotherapy: An elusive goal? *American Psychologist, 69*(3), 218-229. doi:10.1037/a0035099

West, R. F., Toplak, M. E., & Stanovich, K. E. (2008). Heuristics and biases as measures of critical thinking: Associations with cognitive ability and thinking dispositions. *J Educ Psychol*.