

Critical Thinking: Knowledge and Skills for Future Helping Professionals

Patrick Finn, PhD, CCC-SLP
 Communication Sciences and Special Education
 Institute for Evidence Based Health Professions Education
 University of Georgia
 Athens, GA



Critical Thinking: Knowledge and Skills for Our Future Professionals

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Goals of presentation:

- Why teach critical thinking
- What basic knowledge and skills are required
- Does critical thinking generalize to everyday thinking



Why teach critical thinking to our future helping professionals?



Employers want critical thinking skills

Employers Say Colleges Should Place Varying Degrees Of Emphasis On Selected Learning Outcomes

	More %	Less %	Same %
Critical thinking and analytical reasoning skills	82	7	11
The ability to analyze and solve complex problems	81	6	13
The ability to effectively communicate orally	80	8	12
The ability to effectively communicate in writing	80	8	12
The ability to apply knowledge and skills to real-world settings	78	6	16
The ability to locate, organize, and evaluate information from multiple sources	72	9	19
The ability to innovate and be creative	71	9	20
Teamwork skills and the ability to collaborate with others in diverse group settings	67	11	22
The ability to connect choices and actions to ethical decisions	64	9	27
Knowledge about science and technology	56	9	35
The ability to work with numbers and understand statistics	55	10	35
Proficiency in a language other than English	43	18	39
Knowledge about global issues and developments and their implications for the future	40	15	45
Knowledge about the role of the United States in the world	35	18	47
Knowledge about cultural diversity in America and other countries	33	22	45
Civic knowledge, civic participation, and community engagement	30	18	52
Knowledge about democratic institutions and values	27	20	53

Association of American Colleges and Universities (2013)

Fifty years of judgment and decision making research

- Have revealed decision makers are biased
- Often resulting in false beliefs and poor decisions
- Including:
 - Physicians
 - Psychologists
 - Wall Street
 - Politicians
 - Scientists



Akerloff & Schiller, 2009; Gilovich, Griffin, & Kahneman, 2002; Gould, 1981; Halpern, 2002; Hyman, 2002; Institute of Medicine, 1999; Kahneman, 2011; Kipnis, 2010; Stanovich, 2009

And our professionals, too

- Have adopted treatments that have scant evidence or fail to live up to developers' claims
- Examples include:
 - SpeechEasy
 - Facilitated Communication
 - FastForward
 - Nonspeech oral motor exercises

Finn et al., 2005; Lof & Watson, 2008; Lass & Pannbacker, 2008

Intelligence and good intentions are insufficient

- Intelligence tests do not assess rational thinking
- Positive self-assessments, such as good intentions, mislead people into believing they can do no harm
- Smart, good intentioned people make poor decisions and develop false beliefs

Gilovich, Epley, & Hanks, 2005; Stanovich, 2009; West, Meserve, & Stanovich, 2012;

Several professional associations have adopted critical thinking as knowledge and skill required of students graduating from their accredited programs

- Including:
 - American Dental Education Association
 - American Nursing Association
 - American Psychological Association
- Currently advocated for:
 - Medical students
 - Business students

EBP starting point for countering false beliefs

BUT, if clinicians unable to:

- Critically evaluate evidence
 - Understand what they believe & why they believe it
- THEN may still make bad decisions**



Finn, 2011; Kamhi, 2011

Knowledge & skills for critical thinking

Based on pedagogical/research literature from:

- Psychology
- Education
- Philosophy



Basic knowledge required for critical thinking

- What is critical thinking
- Characteristics of a critical thinker
- How our thinking can go wrong



What is critical thinking?

- **Negative connotation**
 - Criticism
 - Negativity
 - Argumentative
 - Opposition



Halpern (2010)

What is critical thinking?

- **Reality: Critical thinking implies**
 - Evaluation
 - Evidence
 - Effort
 - Careful
 - Self-aware



Halpern (2010)

Definition of critical thinking

- 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.

Wade & Tavis (2008)

Definition of critical thinking

- 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.

Wade & Tavis (2008)

Instructive elements of definition

- **Thinker's intent to assess claims**
 - "willingness to assess"
 - "willing to engage in debate about validity of idea"
- **Based on set of skills**
 - "Critical thinking is the ability"

Instructive elements of definition

- **Engaging in an evaluative process**
 - "look for flaws in an argument"
 - "be creative and constructive"
 - "come up with alternative explanations"
 - "think of implications of research findings"
 - "resist claims that have no support"

Respect evidence & reasoning



Nickerson, 2008; Paul & Elder, 2006

Learn to tolerate uncertainty

"Not to be absolutely certain is, I think, one of the essential things in rationality."

- Bertrand Russell



Nickerson, 2008; Paul & Elder, 2006

How can our thinking go wrong?



Kida (2006)

Basic skills required for critical thinking

- Interpretation
- Evaluation
- Metacognition



Critical thinking skills introduced via textbook

Asking the right questions by Browne & Keeley (2010)

Browne, Economics professor

Keeley, Psychology professor

Bowling Green State U.



Critical thinking skills learned and practiced via:

- Homework assignments
- Case-based articles
- Instructor-designed in-class exercises
- Reflection of everyday experiences



Interpretation involves:

- Identify argument under consideration
- Identify reasons supporting argument
- Assess available information for clarity



Finn (2011)

Interpretation: Asking the right questions

1. What are the issue and conclusion?
2. What are the reasons?
3. What words or phrases are ambiguous?
4. What are the value and descriptive assumptions?

Browne & Keeley (2011)

Evaluation involves:

- Examining quality of inferences in moving from reasons to conclusion
- Evaluating quantity and quality of evidence
- Judging overall quality of argument



Finn (2011)

Evaluation: Asking the right questions

1. Are there any fallacies in the reasoning?
2. How good is the evidence?
3. Are there rival causes?
4. Are the statistics deceptive?
5. What significant information is omitted?
6. What conclusions are possible?

Browne & Keeley (2011)

Metacognition: Awareness & analysis of one's own thinking:

- Monitor relevancy and quality of one's thinking
- Awareness of one's own biases and assumptions
- Applying and monitoring thinking strategies



Finn (2011)

How would you communicate your conclusion?



Browne & Keeley (2011)

Question	M (SD)	Med
Instructor knowledgeable & well-prepared	4.6 (0.8)	5
Assignments & activities were useful for helping me to learn	4.3 (1.0)	5
Course challenged me to think and learn	4.3 (1.1)	5
Textbook helpful and easy to understand	4.5 (0.7)	5

Student comments

- The information taught in this class really did help me to become a better critical thinker
- The thoughts behind this class are important to learn for becoming helping professionals. I think this class is vital for people going into our field
- The content of this class certainly challenged me to become a more objective and critical thinker.

Do critical thinking skills transfer to everyday thinking?

Halpern Critical Thinking Assessment (HCTA)

- Evaluates CT skills applied across 25 everyday scenarios

Response to each scenario requires:

Open-ended response (e.g., typed short answer)

- Assess "disposition" to engage in CT

Force choice response (e.g., multiple choice, ranking)

- Assess "recognition" of CT

Halpern (2010)

HCTA: How good is it?

Psychometric characteristics:

- Good internal consistency: Cronbach's $\alpha = 0.85-0.97$
- Criterion & construct validity established across various studies

Current study - Interrater agreement: $r = .97$



Halpern (2010)

Table 1
Student Characteristics

N	Age Range	Sex		Ethnicity		
		Female	Male	White	Black	Asian
60	19 – 32 years	60	0	60	0	0

Average age = 20.8 years

Finn (2012)

Table 2
HCTA Total Scores Before and After Spring 2012 Course. Total possible points = 194

	M (SD)	Mdn	Range	95% CI	
				LL	UL
Pretest	120.4 (11.3)	121.5	97 - 143	117.5	123.4
Posttest	129.1 (12.6)	129.0	101 - 154	126.0	132.4

$t(59) = -5.93, p = .001, d = .76$

Average difference between means = -8.80

Finn (2012)

Table 3
HCTA Subscores for CT Disposition (Total possible points = 95) and CT Recognition (Total possible points = 99) for Spring 2012

	M (SD)	Mdn	Range	95% CI	
				LL	UL
Disp-Pre	54.9 (8.3)*	55	33 - 71	52.7	57.1
Disp-Post	60.5 (8.8)*	61	44 - 78	58.2	62.8
Recog-Pre	65.5 (5.7)**	65	54 - 79	66.7	69.7
Recog-Post	68.7 (5.4)**	68	57 - 78	67.3	70.1

* $t(59) = -4.91, p = .001, d = .59$
** $t(59) = -4.26, p = .001, d = .55$
Average difference between disposition means = -5.56
Average difference between recognition means = -3.21

Finn (2012)

Can you talk about teaching critical thinking skills to undergraduate students?

Pros

- Students learn value of critical thinking
- Many apply skills to their everyday life

Cons

- Unclear if skills will maintain throughout education and into professional life
- Unclear if skills will be used in professional life
- Tend to be weak-sense rather than strong-sense critical thinkers

Take home message

Critical thinking in EBP:

- Is about ways of deciding & conveying well to others what we believe & what we are doing or intend to do
- Not for our personal satisfaction
- But for the full benefit of the patient & the community
- Maybe it should be a required knowledge & skills for all of our future helping professionals

Jenicek & Hitchcock (2005)

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