

Integrating Critical Thinking into Extension Programming #1: Critical Thinking Defined¹

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Introduction

Critical thinking has been called one of the most important attributes for success in the 21st century (Huitt, 1998) and has been recognized as “one of the most important cognitive traits leading to an individual’s success” (Lamm et al., 2011, p. 13). Meyers (1986) argued that for individuals to reach their fullest potential in today’s society, they must learn to think and reason critically. Paul (2002) also exerted that “in a world of accelerating change, intensifying complexity and increasing interdependence, critical thinking is now a requirement for economic and social survival” (p. 4). Based on these statements, it is no wonder that Extension is stressing the importance of incorporating critical thinking into programming. However, for many, critical thinking remains an ambiguous idea that is difficult to identify and even more difficult to integrate into existing educational materials and communication efforts (Gorham, Lamm, & Rumble, 2014). This EDIS document, the first in a series on integrating critical thinking into extension programming, defines critical thinking to assist extension professionals in better understanding the concept. The entire series includes the following EDIS documents:

1. Critical Thinking Defined (<http://www.edis.ifas.ufl.edu/wc206>)
2. Developing Critical Thinking Skills (<http://www.edis.ifas.ufl.edu/wc207>)

3. Critical Thinking Style (<http://www.edis.ifas.ufl.edu/wc208>)
4. Measuring Critical Thinking Styles Using the UFCTI (<http://www.edis.ifas.ufl.edu/wc209>)
5. Using Critical Thinking Styles to Enhance Team Work (<http://www.edis.ifas.ufl.edu/wc210>)

Definitions of Critical Thinking

Critical thinking definitions range from the simple to the complex. Norris and Ennis (1989) simply defined critical thinking as a “reasonable and reflective thinking focused on deciding what to do or believe” (p. 18). Paul (1995) stated that a master of critical thinking uses a set of intellectual standards. These standards guide the thinking process and help individuals heighten their ability to think critically. Thinking about thinking for the purpose of improving the thought process is at the heart of critical thinking (Paul, 1995).

Halpern (1996) defined critical thinking as “the use of cognitive skills or strategies that increase the probability of a desirable outcome” (p. 5). Other definitions include the formation of logical inferences (Simon & Kaplan, 1989), developing careful and logical reasoning (Stahl & Stahl, 1991), deciding what action to take or what to believe through reasonable reflective thinking (Ennis, 1991), and

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purposeful determination of whether to accept, reject, or suspend judgment (Moore & Parker, 1994). To go even further, Burden and Byrd (1994) categorized critical thinking as a higher-order thinking activity that requires a set of cognitive skills.

In a comprehensive attempt to define critical thinking, Pascarella and Terenzini (1991) stated:

critical thinking has been defined and measured in a number of ways but typically involves the individual's ability to do some or all of the following: identify central issues and assumptions in an argument, recognize important relationships, make correct inferences from data, deduce conclusions from information or data provided, interpret whether conclusions are warranted on the basis of the data given, and evaluate evidence or authority (p. 118).

Delphi Determined Virtues of Critical Thinking

Some clarity in defining critical thinking was achieved when a group of leading researchers with expertise in the field of critical thinking was asked to define critical thinking through a Delphi study. A Delphi study uses a group of experts to come up with broad ideas from each member individually and then narrows down the ideas through a rigorous process to determine a single concept which the group of experts agrees through consensus is appropriate for the situation. In this case, the Delphi participants came to consensus that there is a set of intellectual virtues or habits that reflect a disposition towards thinking critically. These virtues were identified in their final consensus statement:

The ideal critical thinker is

- Habitually inquisitive;
- Well-informed;
- Trustful of reason;
- Open-minded;
- Flexible;
- Fair-minded in evaluation;
- Honest in facing personal biases;
- Prudent in making judgments;
- Willing to reconsider;
- Clear about issues;

- Orderly in complex matters;
 - Diligent in seeking relevant information;
 - Reasonable in the selection of criteria;
 - Focused in inquiry; and
 - Persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit
- (American Philosophical Association, 1990, p. 2).

How to Use this Information

Without understanding the definition of critical thinking it is extremely difficult to think about integrating the concept into educational experiences or Extension communication efforts. Any educational experience designed to enhance critical thinking should be designed with the virtues listed above in mind. Targeting programming that integrates the enhancement of critical thinking skills, such as encouraging participants to make order of complex matters or encouraging participants to seek relevant information when participating in Extension programming will assist in enriching Extension programs that result in enhanced critical thinking skills. Specific ways to integrate critical thinking into Extension programming, including developing critical thinking skills and using critical thinking styles to enhance team work, will be offered in later EDIS publications associated with this series.

Conclusions

Extension professionals who understand and can define critical thinking are better prepared to develop and prepare Extension materials that offer opportunities for clientele to engage in critical thinking experiences and further develop critical thinking skills. Through an understanding of how critical thinking is defined, and by having an overall perspective of the virtues associated with an ideal critical thinker, Extension professionals will be prepared to learn how to develop programs that integrate learning experiences focused on critical thinking.

References

American Philosophical Association. (1990). The Delphi Report Executive Summary: Research findings and recommendations prepared for the committee on pre-college philosophy. (ERIC Document Reproduction Service No. ED315423)

Burden, P. R., & Byrd, D. M. (1994). *Methods for effective teaching*. Boston, MA: Allyn and Bacon, Inc.

Ennis, R. H. (1991). Critical thinking: A streamlined conception. *Teaching Philosophy*, 14(1), 5–24.

Gorham, L. M., Lamm, A. J., & Rumble, J. N. (2014). The critical target audience: Communicating water conservation behaviors to critical thinking styles. *Journal of Applied Communications*, 98(4), 42–55.

Halpern, D. F. (1996). *Thought and knowledge: An introduction to critical thinking*. Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

Huitt, W. (1998). *Critical thinking: An overview*. Educational Psychology Interactive. Valdosta, GA: Valdosta State University.

Lamm, A. J., Rhoades, E. B., Irani, T. A., Roberts, T. G., Unruh Snyder, L. J., & Brendemuhl, J. (2011). Utilizing natural cognitive tendencies to enhance agricultural education programs. *Journal of Agricultural Education*, 52(2), 12–23. DOI:10.5032/jae.2011.02012.

Meyers, C. (1986). *Teaching students to think critically*. San Francisco, CA: Jossey-Bass Inc. Publishers.

Moore, B. N. & Parker, R. (1994). *Critical thinking*. Mountain View, CA: Mayfield.

Norris, S. P., & Ennis, R. H. (1989). *Evaluating critical thinking*. Pacific Grove, CA: Midwest Publications.

Pascarella, E., & Terenzini, P. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco, CA: Jossey Bass.

Paul, R. W. (1995). *Critical thinking: How to prepare students for a rapidly changing world*. Santa Rosa, CA: Foundation for Critical Thinking.

Paul, R. W. (2002). *The international center for the assessment of thinking: Critical thinking essay examination*. Santa Rosa, CA: Foundation for Critical Thinking.

Simon, H. A., & Kaplan, C. A. (1989). Foundations of cognitive science. In M. I. Posner (Ed.), *The foundations of cognitive science*. Cambridge, MA: MIT Press: 1–47.

Stahl, N. N., & Stahl, R. J., (1991). We can agree after all: Achieving a consensus for a critical thinking component of a gifted program using the Delphi technique. *Roeper Review*, 14(2), 79–88.