Critical Thinking in the Classroom...and Beyond

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ABSTRACT

Critical thinking in the classroom is a common term used by educators. Critical thinking has been called "the art of thinking about thinking" (Ruggiero, V.R., 2012) with the intent to improve one's thinking. The challenge, of course, is to create learning environments that promote critical thinking both in the classroom and beyond. Teaching and practicing critical thinking provides adults with the opportunity to embrace and take charge of their learning. Adults engaged in critical thinking approach the classroom experience differently. Typically, students who implement critical thinking skills approach the courseware in a more thoughtful and effective manner, ask more challenging questions and participate in the learning process more intensely. This critical thinking process endures beyond the classroom and into the workplace. This session examines the background of critical thinking, its role in the classroom and beyond that to the workplace.

INTRODUCTION

Critical thinking is a common course in college and university settings today. Frequently taught as a way to "improve" thinking, the art of critical thinking involves an approach to thinking--more importantly to learning--that embraces changing how one thinks about thinking. Critical thinking incorporates how learners develop and apply thought to understand how thinking can be improved. Typically, a person is deemed a critical thinker to the extent that he or she regularly improves their thinking in an intentional manner. The basic idea undergirding the study of critical thinking is simple--to determine strengths and weaknesses in one's thinking in order to maintain the strengths and make improvements by targeting the weaknesses.

The word *critical* for this paper is not intended to denote a negative approach to thinking. Critical implies evaluation of thoughts, ideas or judgments with awareness, creativity and refinement of these processes as needed.

Critical thinking has its roots in the work of such notables as Socrates, Thomas Aquinas, Francis Bacon, Rene Descartes, John Locke and Sir Issac Newton in its earliest times. More modern contributions can be attributed to John Dewey, Ludwig Wittgenstein, and Jean Piaget among others. Work completed by Robert Ennis in the 1960s gave rise to critical thinking skills taught in the classroom and reflected in the workplace. Ennis focused on critical thinking as a learned skill that could be transferred to the workplace if taught and practiced. As a result of many years of research, analysis, teaching and practice, Ennis concluded that critical thinking is "focused on deciding what to believe or do," (Ennis, p. 10).

Ennis separated critical thinking into two categories: dispositions and abilities. The ideal critical thinker, in his writings, is disposed to reach a "right" decision, present that position honestly and clearly, consider others' points of view, seek to be well informed, and to avoid intimidating or confusing others. Additionally, that critical thinker has the ability to focus on a question, analyze and argument, judge the creditability of a source, make and value judgments, clarify and refine their viewpoint, support their viewpoints appropriately, and to imaginatively suppose and integrate the logic of a viewpoint with sensitivity to others (Ennis, 2011).

Vincent Ruggiero writing in *The art of thinking: A guide to critical and creative thought* describes thinking as "any mental activity that helps formulate or solve a problem, make a decision, or fulfill a desire to understand. It is searching for answers while reaching for meaning" (Ruggiero, 2012 p. 4). He notes that thinking may not always be a conscious effort. There are forces at work--beneath the surface so to speak-- within the unconscious that dictate one's overt thinking. An example might be driving to a daily destination such as work without consciously remembering each landmark along the route. This type of thinking occurs without much critical thought at all. Indeed, the brain seems to be on auto-pilot in this situation. Critical thinking according to Ruggiero is more at-

tuned to thinking that occurs to solve problems, analyze issues or make decisions. Staying with the aforementioned example, if the road normally driven is blocked or closed, the driver would need to critically think about an alternate route. Which route is shortest to the destination? Which route might not be blocked like the one encountered? What could happen if that route were taken? All these questions are examples of critical thinking based on a problem needing to be solved.

Problem solving is the ultimate intent of critical thinking for many scholars who study the phenomenon. Skills in problem solving, issue analyses and decision making are increasingly expected of employees. Evidence is growing that critical thinking is "expected" in the workplace. More than 400 senior HR professionals were asked in a survey to name the most important skill their employees will need in the next five years. Critical thinking ranked the highest – even more than innovation or the application of information technology. This response reflects how the nature of work and the skills required have been changing dramatically (Society for Human Resources Management, 2006).

Meaning of Critical Thinking

In a recent survey by the American Associate of Colleges & Universities (AACU), 74 percent of respondents indicated that critical thinking was a core learning objective for the campus's general education program (AACU Report, 2009, p. 4). While there is a general agreement among higher education professionals that critical thinking skills are important, there is a lack of clarity about what exactly critical thinking *is*. A California study found that only 19 percent of faculty could give a clear explanation of critical thinking even though the vast majority (89 percent) indicated that they include it in their curriculum (Paul, Elder,& Bartell, 1997). While interviewing a private liberal arts college faculty, Halx and Reybold (2005) explored instructors' perspectives of undergraduate thinking. Most participants were "eager to promote critical thinking" (p. 300) but the authors noted that none had been specifically trained to do so. The result was that instructors each developed and promoted their own distinct definition of critical thinking.

To arrive at a working definition of critical thinking, a review of the literature suggests several definitions as listed in Appendix A. These definitions were gleaned from many that appear in various publications. A consensus is difficult--if not impossible--to reach. Scholars, journalists and authors of every ilk "poke" at a definition that will satisfy the masses. One could speculate that this attempt to qualify critical thinking will continue throughout the ages and one whose definition suits the occasion is the mostly likely one that a writer will select.

Characteristics of a Critical Thinker

Critical thinkers are those persons who can move beyond "typical" thinking models to an advanced way of thinking. Critical thinkers produce both more ideas and improved ideas than poor thinkers (Ruggiero, 2012). They become more adept in their thinking by using a variety of probing techniques which enable them to discover new and often improved ideas. More specifically, critical thinkers tend to see the problem from many perspectives, to consider many different investigative approaches, and to produce many ideas before choosing a course of action. In addition, they are more willing to take intellectual risks, to be adventurous, to consider unusual ideas, and to use their imaginations while analyzing problems and issues.

Critical thinkers test their first impressions, make important distinctions among choices, and base their conclusions on evidence rather than their own feelings. Sensitive to their own limitations and predispositions, they double-check the logic of their thinking and the workability of their solutions, identifying imperfections and complications, anticipating negative responses, and generally refining their ideas.

Critical thinkers learn to focus. They do not experience fewer distractions than others do; they simply deal with them more quickly and more effectively than ineffective thinkers do. There is no magic in what effective thinkers do. They practice their skills much like any learned skill.

Critical thinkers typically (Ruggiero, 2012):

- Acknowledge personal limitations.
- See problems as exciting challenges.
- Have understanding as a goal.
- Use evidence to make judgments.
- Are interested in others' ideas.
- Are skeptical of extreme views.
- Think before acting.
- Avoid emotionalism
- Keep an open mind
- Engage in active listening

Conversely, non-critical thinkers, typically (Ruggiero, 2012):

- See a limited number of perspectives (sometimes just one)
- Take the first approach that occurs to them
- Judge quickly—maybe too quickly and not critically
- Fail to listen actively
- Think their ideas are the best--all others are less
- Resist change
- Think in stereotypes
- Deceive themselves often

CRITICAL THINKING IN THE CLASSROOM

As noted earlier, critical thinking is an oft-used phrase in classroom settings. Adult learners are encouraged to develop these skills and practice them situationally. Critical thinking means reviewing the ideas produced, making a tentative decision about what action will best solve the problem or what belief about the issue is most reasonable, and then evaluating and refining that solution or belief (Ruggiero, 2012). The effects of developing keen problem solving skills cannot be understated. Problem solving skills have the potential to impact individuals more immediately and often with ramifications for the future. Those who attend to the notion of improving these skills are characterized in some important ways listed in the table below as posited by Ruggiero, 2012)

Chart of Problem Solvers

Effective Problem Solvers	Ineffective Problem Solvers
Read a problem and decide how to attack it.	Cannot determine where or how to begin.
Bring their knowledge to bear on the problem.	Convince themselves they lack sufficient knowledge.
Solve a problem systematically: simplify, define and break into parts	Jump in haphazardly jumping from one part to another as they justify their first impressions instead of testing them.
Trust their reasoning and experience thus boosting their confidence.	Tend to distrust their reasoning and lack confidence in themselves.
Maintain a critical attitude throughout the problem solving process.	Lack a critical attitude and take many assumptions for granted.

Acknowledging that critical thinking is an important skill is fundamental. Critical thinking can be taught and should be taught in a directed manner providing students with practice while evaluating and testing ideas. Critical thinking is not a natural byproduct of taking college courses, even courses whose subject matter necessitate critical thinking for success. In *Developing Critical Thinkers,* Stephen Brookfield (1987) emphasizes that "a willingness to risk experimentation in one's teaching is an important aspect of modeling change and promoting critical openness in learners" (p.81). To that end, educators influence whether a student will learn critical thinking skills in their academic journey.

Benefits of Critical Thinking for the Classroom

Instructors who teach critical thinking provide students with the opportunity to understand and take charge of their learning. Students who implement critical thinking skills approach the courseware in a more thoughtful and effective manner, ask more challenging questions and participate in the learning process more intensely.

Students who develop critical thinking skills often practice those skills well into latter life. These skills may, in fact, literally change their lives forever. Developing critical thinking abilities translates to both academic and job success. Using these skills, students tend to expand the perspectives from which they view the world and increase their ability to navigate the important decisions in learning and in life.

At one time, educators believed that content knowledge was enough for students to succeed. It was thought that --for the most part--information that students learned in school was the same information that their parents learned. That paradigm has shifted in a changing world typified by instant communication, 24/7 news cycles and the desire to know as much as possible as quickly as possible. The power and speed of technology has created a world where information changes quickly, and new ideas can be distributed and adapted almost instantaneously. It has also resulted in inaccurate and mis-information which has to be sorted through and questioned critically. Today it is important that students learn critical thinking skills, so they can be both the inventors and the critics of the new information. Edward de Bono (2004) in de Bono's Thinking Course writes, "Knowledge is not enough. The creative, constructive, design and operating aspects of thinking are just as important as knowledge" (p.6).

A caution is in order here. To develop critical thinkers is to develop both the best and worst in thinking. Those who master critical thinking--a long and winding path--may at first use their newly found skill in a negative way.

It is prudent to remember that to thinki critically is not to criticize in a negative manner but rather to "think deeply or to question." According to Michael Roth (2013) "In a humanities culture in which being smart often means being a critical 'un-masker,' our students may become too good at showing how things *don't* make sense."The goal of critical thinking is to learn a way to think more deeply, solve problems better, communicate, collaborate and innovate more effectively in our personal as well as organizational lives.

CRITICAL THINKING IN THE WORKPLACE

Why is critical thinking important in the workplace? Critical thinking is applicable whenever people are called to make a decision or resolve a problem. Working people make decisions. Some are good decisions that move the business forward and increase profit. Others are poor decisions that hurt the business and reduce profit. This is a frequent occurrence in workplaces at any level.

Management and upper level executives are not the only ones who have the responsibility of making decisions; decision making and problem solving are a constant in organizations. Each person in an organization or business no matter what their position makes hundreds of decisions every day and each one is an opportunity for success or failure.

Benefits of Critical Thinking in the Workplace

Critical thinking in the workplace has the potential to impact people either in a negative or positive way through the decision making process. Often decisions are made and passed along to people within organizations without much thought based on the need to take some action. In this case, the impact for "normal" actions may be harmless based on daily routine. But for critical issues/ problems, "bad" decisions can negatively impact or render a serious blow to the business. To mitigate the risk of serious negative consequences, it is important to make decisions by carefully weighing them based on information that has been thoroughly analysed, evaluated and searched for the most reasonable solution.

The practice of critical thinking encourages employees and managers to observe various situations, weigh all possible solutions, then decide on a course of action. This process can be a lengthy one that necessitates input from multiple sources at different levels within the organization. Using critical thinking skills is a benefit for employees as well as management when the practice is modeled and promoted from the top to the bottom of the organizational hierarchy (Anderson, 2013).

Evidence is strong that critical thinking skills are need and desired by employers. In a 2007 Society for Human Resources Management Report, employers placed the greatest weight on employee critical thinking and problem solving (47% and 46 % respectively) skills as desired skills for new hires. Potential employees reported-- as a recent change in their desired skills before entering the workplace-- critical thinking/problem solving (48%), creativity/innovation (40%) and leadership (40%) as necessary tools for employment.

Benefits of advancing critical thinking are more than a "nice" thing to do. This skill can literally improve profits and capabilities of employees. Given the ability to apply critically enhanced thinking, companies/organizations can expect a different quality of corporate culture. That improved culture may translate into dollars or more revenue in the long run or improved personal communications, cooperation and collaboration in the short run. Potential organizational impacts of critical thinking are suggested in Appendix B.

Critical thinking brings new ideas and often processes to the workplace. For example when approaching a problem solving issue surfaces in the workplace, a common reaction is to assume that it falls into a predetermined category. Critical thinking does not make any assumptions, and using the process of critical thinking in the workplace removes the temptation to immediately classify every issue under something that has happened in the past. Employees can look beyond conventional solutions, search for new ideas, and contemplate the alternatives to address the problem. Using critical thinking as an approach to problem solving, issue resolution or new product or processes can liberate thinking in many different way. Additionally, critical thinking looks at the impact beyond a specific step in the decision process; i.e., if step one changes in a decision, then the follow-on steps need to be examined critically as well. This approach to thinking opens possibilities that may otherwise lie unfolded.

SUMMARY

Critical thinking skills learned in the classroom definitely have an impact on future learning in the workplace. Once learned, these skills imprint workers to think deeply and critically about workplace issues and their individual roles in enhancing corporate cultures while adding value to the products or services that an organization provides to the community or to the world.

Critical thinking skills are transferable from the classroom to the workplace. Transferring critical thinking skills is evidenced by the ability of an individual worker to make effective, well thought out and tested decisions that impact daily life in the workplace. May of these decisions extend beyond that individual worker and have a bearing on others in their own decision making.

Critical thinking is the lifeblood of the most essential workplace skills, including problem solving, decision making, good judgment and sound analysis. Organizations that can attract, retain and develop the best critical thinkers have a significant and measurable competitive advantage in the business world (Facione, 2013).

REFERENCES

Anderson, A. (2013) What are the benefits of critical thinking in the workplace? Retrieved from: http://smallbusiness.chron.com/benefits-critical-thinking-workplace-11638.htm

Are They Really Ready to Work? Employers Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century US Workforce (2006). Study conducted by The Conference Board, Partnership for 21st Century Skills, Corporate Voices for Working Families, and the Society for Human Resource Management.

Association of American Colleges and Universities. (2009). Learning and assessment: Trends in undergraduate education. Retrieved from www.aacu.org/membership/documents/2009MemberSurvey_Part1.pdf

Brookfield, S. D. (1987) Developing critical thinkers: challenging adults to explore alternative ways of thinking and acting. San Francisco, CA: Jossey-Bass, Inc.

Burbach, M. E., Matkin, G. S., & Fritz, S. M. (2004). Teaching critical thinking

in an introductory leadership course utilizing active learning strategies: A confirmatory study. *College Student Journal, 38*(3), 482-493.

Debono, E. (2004). Debono's thinking course. London: Facts on File Publishing Co.

Dewey, J. (1910). *How We Think*. Buffalo, NY: Prometheus Books.

Ennis, Robert H. (2011). Critical thinking: Reflection and perspective, Part I. *Inquiry,* Vol. 26, 1.6

Ennis, Robert H. (2007). 'Probable' and its equivalents. In Hans V. Hansen & Robert C. Pinto (Eds.), *Reason reclaimed: Essays in honor of J. Anthony Blair and Ralph H. Johnson*. Newport News, VA: Vale Press. 243-256.

Ennis, Robert H. (2006). 'Probably'. In David Hitchcock & Bart Verheij (Eds.), *Arguing on the Toulmin model*. Dordrecht, the Netherlands: Springer. Pp. 145-164.

Ennis, Robert H. (2004). Applying soundness standards to qualified reasoning. *Informal Logic*, 24, 1, 23-39.

Haix, M. D., & Reybold, L E. (2005). A pedagogy of force: Faculty perspectives of critical thinking capacity in undergraduate students. *The Journal of General Education*, 54(4), 293—315. DOI:10.1353/jge.2006.0009

Elder, P.R., & Elder, L. (2008). *The thinker's guide for conscientious citizens on how to detect media bias & propaganda in national and world news*. Dillon Beach: CA: Foundation for Critical Thinking Press.

Elder, P.R, & Bartell, T. (1997). Study of 38 public universities and 28 private universities to determine faculty emphasis on critical thinking in instruction. Retrieved fromRPAUL-3 8public.cfm

Facione, P. A. (2013). *Critical thinking: What it is and why it counts*. Millbrae, CA: Measured Reason and the California Academic Press.

Facione, P. A. (1990). *The Delphi report*. Millbrae, CA: The California Academic Press.

Ruggiero, V. R. (2012). *The art of thinking: A guide to critical and creative thought* (10th ed.). New York, NY: Longman.

Roth, M.S. (2013). Beyond critical thinking. *The Chronicle of Higher Education*. April 29, 2013. Retrieved from: http://chronicle.com/article/Beyond-Critical-Thinking/63288/

Society for Human Resources Management (2007). *Critical skills needs and resources for the changing workforce*. Retrieved from: www.shrm.org.

Wisegeek, (n.d.) *What is critical thinking?* Retrieved from: http://www.wisegeek.org/what-is-critical-thinking.htm

APPENDIX A
Selected Definitions of Critical Thinking

- The art of thinking about thinking (Ruggiero, V.R., 2012, p.5)
- Critical thinking focuses on deciding what to believe or do, (Ennis, p. 10).
- Critical thinking is a mode of thinking about any subject, content or problem in which the thinker improves the quality of his or her thinking by skillful analyzing, assessing and reconstructing it. (Elder & Elder, 2008)
- Critical thinking is purposeful, self-regulatory, judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based" (P. A. Facione, 2006, p. 21).
- Active, persistent, and careful consideration of a belief or supposed form of knowledge in the light of the grounds which support it and the further conclusions to which it tends. (Dewey, 1910, P. 9)
- Critical thinking is the ability to apply reasoning and logic to new or unfamiliar ideas, opinions, and situations. (Wisegeek, n.d.)

APPENDIX B
Potential Organizational Impact of Critical Thinking

Critical Thinking Skills	Critical Thinking Behaviors	Outcomes
• Distinguish fact from opinion • Seek multiple perspectives • Recognize assumptions • Identify bias and persuasion • Evaluate arguments for relevance and accuracy • Weigh data appropriately • Use multiple sources rather than a single source • Balance logic and emotion • Use diagrams to visually represent processes and thinking	• Asks questions that furthers understanding • Doesn't draw conclusions too hastily • Considers all sides of an argument • Uses criteria to evaluate information • Can "push back" effectively • Recognizes other people's agendas • Explores multiple perspectives • Adjusts assumptions in light of new evidence • Understands how conclusions were drawn • Identify what's not known and what isn't	• Well-thought out decisions based on a sound rationale and evidence • Information, conclusions and decisions are revised as new information comes to light • Decisions reflect a "systems thinking" rather than "silo" approach • Information evaluated based on evidence, logical inference, and informed guesses • Ideas and plans are presented in a coherent and well thought out fashion