

CRITICAL THINKING

# THINKING IN EDUCATIONAL TERMS

SESSION 3

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## What Does Critical Thinking Mean in Education?

### Thinking Skills in Education and Life

An important goal of education is helping students learn how to think more effectively.

The pages below will help you, as a learner and/or teacher, improve your skills in

**Creative Thinking** (to generate ideas) and **Critical Thinking** (to evaluate ideas)

and combining these skills into productive **Problem-Solving Skills**:

#### Creative Thinking

Be Creative, but...

What, Why, and How

Can we teach creativity?

Research about Creativity

#### Critical Thinking

What is critical thinking?

Why teach critical thinking?

How to Teach it Effectively

Logic of Critical Thinking

Ethics of Critical Thinking

#### Problem-Solving Skills

Blending Creative-and-Critical

Multiple Intelligences & Styles

Thinking Skills in Education

Methods in Design & Science

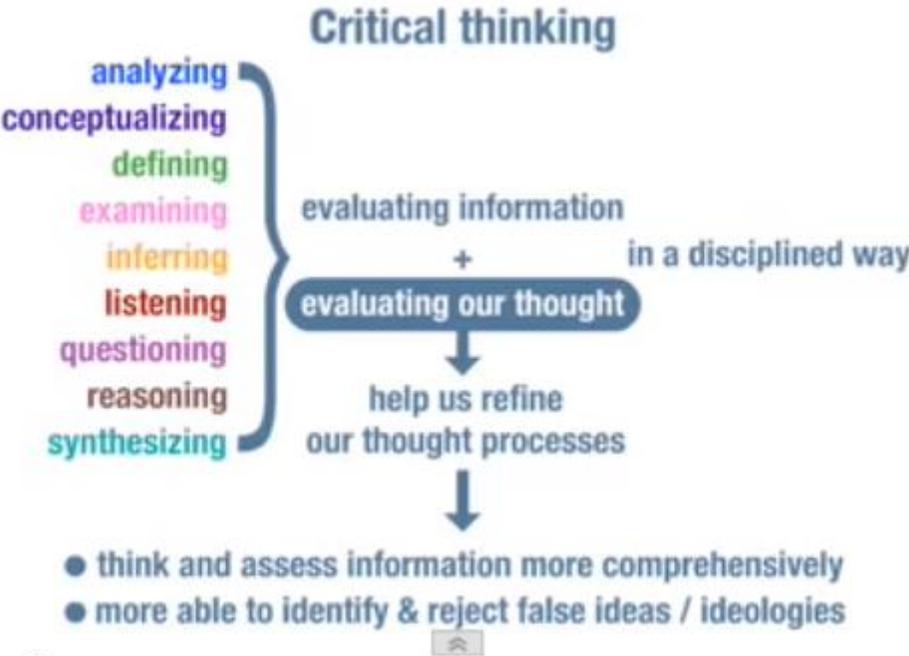
Problem Solving in Education

Critical thinking is an important skill in the 21st century learning. Education's overall goal is to produce students that will be able to think critically and not just take in things like a parrot. Of course there is a bunch of other important skills out there but this particular one stands out from the crowd. The thing about this skill is that while almost all teachers agree upon its priority in education only few really know what it really means.

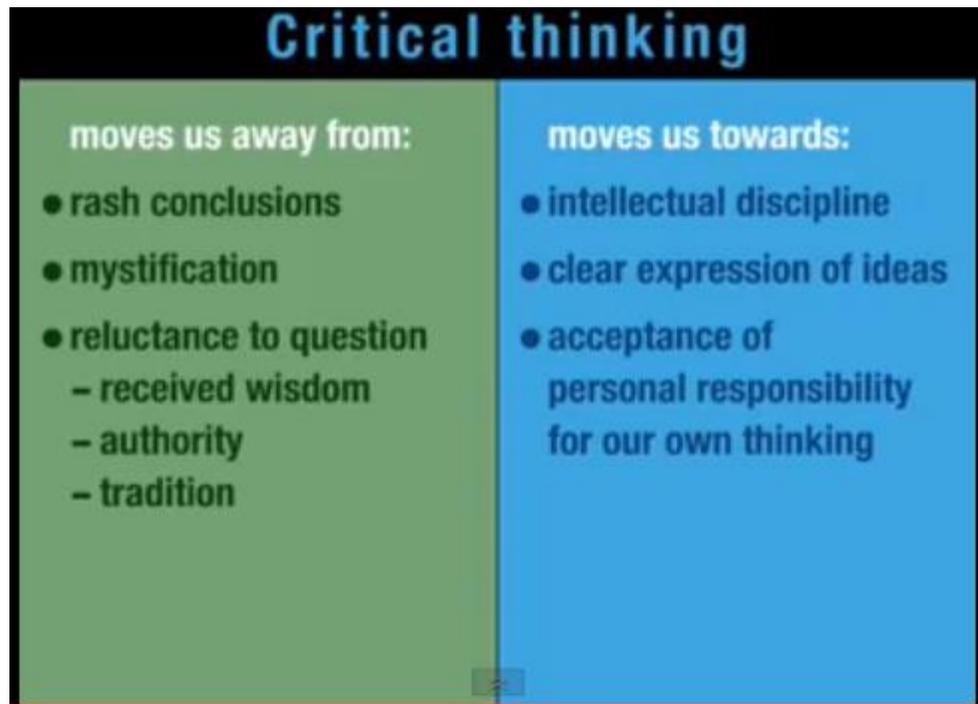


Sometimes the lines between some technical terms are blurred as is the case in the educational jargon when referring to critical thinking as synonymous with creative thinking, a blunder that is though seemingly unimportant yet it can make all the difference for experts. As teachers and educators , we do need to delineate the territory of each term and make sure they do not overlap. We can not say to have developing critical thinking as a goal of our teaching while we still do not understand what it really means to be a critical thinker.

Critical thinking as described in the video below refers to a diverse range of intellectual skills and activities concerned with evaluating information as well as evaluating our thought in a disciplined way.



Critical thinking has a multitude of benefits for us in education, here are some of them :



I would also recommend that you watch this video, it is one of the best videos I have ever watched on critical thinking. Please make sure you share it with with your students, they will learn alot from it.

### Critical Thinking in Education

#### LEARNING Critical Thinking — Educating Yourself

If you want to learn, you can use online tutorials about The Logic of Critical Thinking offered by Critical Thinking Web plus Mission Critical and Critical Thinking Across the Curriculum, from Hong Kong, San Jose, and Kansas City!

## TEACHING Critical Thinking — Activities & Strategies

Useful ideas about critical thinking and education are in *Critical Thinking by Design* (Joanne Kurfiss) and *Critical Thinking: Basic Questions and Answers* (Richard Paul). For a broad overview, *A Brief History of the Idea of Critical Thinking*. And to help those responsible for big-picture decisions, Peter Facione (past president of the American Conference of Academic Deans) wrote *26 Case Studies for Conversation and Reflection* for academic deans and department chairs.

Thinking is encouraged by a creative use of Thinking Activities (\*) such as Socratic Teaching (Six Types of Socratic Questions) and other teaching tactics that encourage active learning. \* Eventually there will be "critical thinking activities in the area for TEACHING ACTIVITIES; although most principles of critical thinking are useful for teachers & students at all levels, instructional activities should be customized for students with different ages, experiences, and abilities.

Dany Adams explains how, "because the scientific method is a formalization of critical thinking, it can be used as a simple model that removes critical thinking from the realm of the intuitive and puts it at the center of a straightforward, easily implemented, teaching strategy," in *Critical Thinking and Scientific Method*.

ERIC Digests offers excellent introductory summary/overviews for teaching critical thinking in schools at all levels, from K-12 through higher education — *How Can We Teach Critical Thinking? & Promoting Critical Thinking in the Classroom & Strategies for Teaching Critical Thinking* — plus methods for teaching critical thinking in the contexts of environmental education & literature & television & adult ESL. { All except "adult ESL" were written between 1989 and 1994, so they're not up-to-date, but most principles for "teaching critical thinking" were discovered/invented before 1989 and are still relevant today. } And ERIC has a wide range of resources, letting you search for research & other information about thinking skills (critical thinking, evaluative thinking, decision making, ...) and much more.

The evaluation of thinking skills is a challenge. Accurate evaluation of a thinking skill — or even defining precisely what the "skill" is, and how we can observe and measure it — is much more difficult than evaluating knowledge. Some educators have accepted the challenge, and (as one example) *Insight Assessment* describes options for evaluation of critical thinking.

*Critical Thinking on the Web* offers links to many interesting, useful resources about critical thinking in a WIDE variety of areas, for teaching & tutorials and more. It's run by Tim van Gelder, whose specialty is Argument Mapping

The Center for Critical Thinking (led by Richard Paul) offers a links-page for critical thinking education — scroll down their page to "Higher Education Strategies & Samples" and "K-12 Strategies & Samples" and "For Students"; and they describe research about critical thinking in colleges with links to "Effect of a Model for Critical Thinking..." and "The Effect of Richard Paul's Universal Elements..." and the full Executive Summary for a study of 56 universities (public & private) to "Determine Faculty Emphasis on Critical Thinking in Instruction." Of course, education also occurs outside schools, and most thinking occurs outside the classroom in everyday life and business (a workshop) and other areas of life.

## The Role of Critical Thinking in Education and Life

All proponents of thinking skills (critical, creative,...) emphasize the relevance of thinking for many aspects of life, not just those usually associated with "thinking." For example, the Critical Thinking Community says, "Critical thinking is the art of taking charge of your own mind. Its value is simple: if we can take charge of our own minds, we can take charge of our lives."

In another page they describe the centrality of thinking, and a common educational problem:

"Critical thinking is not an isolated goal unrelated to other important goals in education. Rather, it is a seminal goal which, done well, simultaneously facilitates a rainbow of other ends. It is best conceived, therefore, as the hub around which all other educational ends cluster. For example, as students learn to think more critically, they become more proficient at historical, scientific, and mathematical thinking. Finally, they develop skills, abilities, and values crucial to success in everyday life. ...

Recent research suggests that critical thinking is not typically an intrinsic part of instruction at any level. Students come without training in it, while faculty tend to take it for granted as an automatic by-product of their teaching. Yet without critical thinking systematically designed into instruction, learning is transitory and superficial."

## The Logic of Critical Thinking

The essence of critical thinking is logic, and logical evaluation — by using reality checks and quality checks — is the essence of Scientific Method and Design Method. On the other end of the logic spectrum, we see a variety of Logical Fallacies that include circular reasoning and strawman arguments.

The main content is in six pages: Critical Thinking Core Concepts (supplemented by Truth Tables), Informal Fallacies (which are interesting because they make a direct connection with everyday

experience); Facts, Opinions and Reasoned Judgements; Statistical Arguments; Charts & Graphs and Visual Trickery.

You can also explore other pages, starting with the Home Page and moving on to the Table of Contents which provides an overview of topics in the six main pages and also has links to other pages about teaching, software, and deduction, plus resources for critical thinking in specific disciplines (psychology, philosophy, law, political science, english, music, math, automotive, office systems, nursing, writing, and reading), and more.

## The Ethics of Critical Thinking

Peter Facione describes a limitation that occurs with all types of thinking:

A person can be good at critical thinking, meaning that the person can have the appropriate dispositions and be adept at the cognitive processes, while still not being a good (in the moral sense) critical thinker. For example, a person can be adept at developing arguments and then, unethically, use this skill to mislead and exploit a gullible person, perpetrate a fraud, or deliberately confuse and confound, and frustrate a project.

The experts were faced with an interesting problem. Some, a minority, would prefer to think that critical thinking, by its very nature, is inconsistent with the kinds of unethical and deliberately counterproductive examples given. They find it hard to imagine a person who was good at critical thinking not also being good in the broader personal and social sense. In other words, if a person were "really" a "good critical thinker" in the procedural sense and if the person had all the appropriate dispositions, then the person simply would not do those kinds of exploitive and aggravating things.

The large majority, however, hold the opposite judgment. They are firm in the view that good critical thinking has nothing to do with... any given set of ethical values or social mores. The majority of experts maintain that critical thinking conceived of as we have described it above, is, regrettably, not inconsistent with its unethical use. A tool, an approach to situations, these can go either way, ethically speaking, depending on the character, integrity, and principles of the persons who possess them. So, in the final analysis the majority of experts maintained that "it is an inappropriate use of the term to deny that someone is engaged in critical thinking on the grounds that one disapproves ethically of what the person is doing. What critical thinking means, why it is of value, and the ethics of its use are best regarded as three distinct concerns." { from Critical Thinking: What It Is and Why It Counts }

Richard Paul describes two beneficial dispositions that are encouraged (but not guaranteed) by critical thinking education:

"Fairminded thinkers take into account the interests of everyone affected by the problem and proposed solutions. They are more committed to finding the best solution than to getting their way." And a critical thinker "has confidence that, in the long run, one's own higher interests and those of humankind at large will be best served by giving the freest play to reason,... despite the deep-seated obstacles in the native character of the human mind and in society as we know it."

Yes, reason is useful, it is noble and desirable, it should be highly valued and carefully developed. But we should keep things in perspective, regarding what reason can accomplish. Probably most of us will agree with Paul (about the value of critical thinking) but also with the majority of experts, who conclude that becoming skilled at critical thinking does not guarantee that this powerful tool will always be used for the benefit of others. { What are the relationships between Critical Thinking and Worldviews? }