

## Chapter 13

# Critical Thinking as a Multifaceted Phenomenon: A Scheme of Interdisciplinary Research Platform

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### ABSTRACT

*The chapter deals with critical thinking (CT) theoretical modeling. CT is explained as a multifaceted phenomenon that should be examined systematically on interdisciplinary platform. The prototype of such a platform is that of cognitive sciences. The basic issues linked to an interdisciplinary research of CT are: relations between CT and language, logical and cognitive operations in the process of critical analysis, methods of CT and their anchoring in the methodology of science, the process of CT in relation to personal dispositions and attitudes, possibilities of development, and evaluation of CT within educational and learning processes. The possibilities of a CT development are specified in the scientific methodology classes where students are guided through propositional logic, towards the analysis of judgments and arguments so they are capable of drafting research papers that have explanatory and argumentative character. The mutual conditionality between the scientific methodology, the procedure of scientific research, and the basic thought operation of CT is stressed.*

### INTRODUCTION

The chapter deals with an explanation of critical thinking as a multifaceted phenomenon revealing the following issues:

- The nature of thinking and thought operations (such as analysis, synthesis, induction, deduction, idealization, abstraction, concretization, generalization and others)
- Relations between language and thinking (in the terms of formulations, syntax and semantics)
- Possibilities of decision making and actions on the basis of objectively provable arguments

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Speaking about critical thinking, there is a very important part of it – a set of personality characteristics, attitudes, cultural and social strategies such as: an effort in a holistic understanding, identifying the contexts of events, systematic skeptical and critical attitudes, impartialness and openness in a constant reevaluation of our own attitudes, willingness to compromises and others. The fundamental steps in the process of critical analysis include: recognition and definition of a problem, purposeful search for relevant information sources, sorting and evaluating (measuring their validity and reliability), the process of deductive and inductive reasoning, finding and identifying the logical errors and drawing own reasonable conclusions.

Just for its great diversity and multifaceted nature, critical thinking hits the point of giving a precise definition and a theoretical model of CT. One of the most common problems is a lack of exact skill definition and CT dispositions, which results in the impossibility of constructing an empirically provable model (not to mention the absence of implementation methods of such a model within university means.

In the next chapter, we will focus on:

- An analysis of possibilities of the CT theoretical modeling based on identifying its fundamental components and relations between them
- A precise identification of the key issues and components of the proposed interdisciplinary CT model (a specification of scientific disciplines dealing with the fore mentioned issues)
- A specification of basic methodological sources of the scientific researches and analogical application of these methodological principles in the CT process
- A scheme of options for development of critical thinking during university studies

## **BACKGROUND**

Nowadays, the issue of critical thinking explanation and its development possibilities is increasingly paid attention. Some authors denominate the capability of critical thinking to be the key competence for 21th century (compare Halpern, 2003, Huitt, 1995, Thomas & Smoot, 1994, Howell & Kemp, 2002 and others). Regarding this statement it is necessary to answer the following basic and complementary questions:

1. Why is the critical thinking important and how can we define it? Function of which variables the critical thinking is?
2. Can we design the critical thinking model?
3. How can we stipulate its process character (i.e. the sequence of steps in which it evolves) while considering the stipulated importance, definition, function and model of the critical thinking?
4. How can we develop the method that can be implemented into the education process regarding the stipulated critical thinking model and process?
5. How can we measure this education method success and assess the level of capability to think critically?

These questions show to be the key ones in the effort for critical thinking (hereinafter referred to as CT) understanding and study how to teach it. In various modifications they are the subject issue to the majority of specific sources dealing with CT (recently still increasing). We will try to briefly formulate potential answers.

Question 1 relates to the CT importance, definition and function. Thinking is closely connected with intelligence which can be freely defined as the internally multiple as well as global ability to act purposefully, think reasonably and cope with the surroundings effectively. The ability to

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