Chapter 7
Metacognition and Critical Thinking: Assessment Methods

Nailya S. Valeyeva
Kazan National Research Technological University, Russia

Roman Kupriyanov
https://orcid.org/0000-0001-9794-9607
Kazan National Research Technological University, Russia

Elvira R. Valeyeva
Kazan National Research Technological University, Russia

ABSTRACT

The chapter incorporated the theoretical issues of assessment of metacognition and critical thinking. In today's fast-changing world, the so-called higher-order skills (such as Metacognition and Reflection, and Critical Thinking) become very important. Although they constitute one of the central goals of the university education, purposeful development of these skills is challenging and difficult. This chapter contains the main approaches to understanding the intellectual skills development process which are underlying research. Theoretical questions of intellect-metacognition are studied, definitions and contents of these notions are given, and the interconnection between metacognition and critical thinking are analysed. The analysis of intellectual skills structure and contents are given. Here, authors also analyze their research in recent years on the questions of critical thinking and a description of methods for assessing the development of critical thinking and reflective skills of students.

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INTRODUCTION

The emergence of knowledge- and information-based civilization imposes new requirements on approaches to professional expertise development. Intellectual activity prevails in any professional performance as modern civilization has formed a new society which is characterized by complicated information technologies, intensive information flows, and a high level of interpersonal communication (Valeyeva et al., 2016). Complex professional performance sets the challenge of developing university students' intellectual skills through making their professional training knowledge-intensive to form an intelligent individual. Therefore, development of metacognition, reflection and critical thinking skills by future professionals becomes particularly important. These skills are universal; that is why they represent one of the most valuable results in any sphere of professional university education.

In this regard, the importance of considering intellectual development as one of the most significant tasks of training students in university degree programs is evident (Egorychev, 2014; Karimov & Kazakova, 2015; Valeyeva et al., 2017).

This chapter aims at studying the problem of intellectual skills development. In accordance with the aim the following research objectives are defined:

- Articulate the nature of metacognition;
- Articulate the structure of intellectual skills;
- Define the place of metacognition in the framework of intellectual skills and its interconnection with critical thinking;
- Suggest methods for evaluating critical thinking and reflective skills.

This chapter contains in the 'Background' the main approaches to understanding the intellectual skills development process which are underlying our research. Here we also provide an analysis of the authors' research in the recent years on the questions of critical thinking.

The main part of the chapter 'The Intellectual Skills Development and Evaluation' consists of three parts. In the first part theoretical questions of intellect-metacognition are studied, definitions and contents of these notions are given, the interconnection between metacognition and critical thinking is analysed. A conclusion is made that the main metacognitive processes are: setting goals, defining the conditions of their achievements, constructing the program activities, and monitoring the results. Also, it is concluded that critical thinking is based on metacognition.

In the second part the analysis of intellectual skills structure and contents are given. The following intellectual skills are distinguished: critical thinking, understanding the complex information, and skills to carry out reflective activity.

The third part contains a description of methods for assessing the development of critical thinking and reflective skills of students. Methods proposed: Project Method for evaluating critical thinking; and Karpov's Reflexivity Questionnaire for evaluating a reflexive skill level.

In 'Conclusion' the chapter is summarized and a conclusion is made on the importance of intentional intellectual skills development with university students.