

TOOL FOR ASSESSING THE LEVEL OF CRITICAL THINKING

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INTRODUCTION

Critical thinking is an important skill which is used every day by people together with other abilities to evaluate and interpret information, choose criteria, make decisions or solve problems. It is essential for life in the 21st century. The Organization for Economic Cooperation and Development (OECD, 2018, s.3) states that schools can prepare students for jobs which have not yet been created, for technologies that have not yet been invented and to solve problems that have not yet been anticipated. There are various definitions of critical thinking available in literature (Stobaugh, 2013; Facione, 1990; Crawford, Mathews, Makinster, & Saul, 2005; Paul & Elder, 2007; Collins & O'Brien, 2003), but many authors agree that critical thinking is the one where higher-level thinking processes are used. Various experts agree that critical thinking is not inherent, and students should have an opportunity to learn how to think critically (Gavora, 1995; Facione, 1990; Kosturková, 2016).

INDICATORS OF CRITICAL THINKING AND PHYSICAL TASKS

There were five indicators, which have shown the level of students' critical thinking in mathematics and science in The Reading and Writing for Critical Thinking Project (Crawford et al., 2005). Adapting them for our uses, we work with the following indicators: formulation of hypothesis; gathering of relevant information and data; analysis and evaluation of gathered information and data; determining of conclusion from the results of analysis and evaluation; stating of arguments which support determined conclusions; self-regulation. For each of these indicators we have prepared physics tasks, in which students have to apply some skills of critical thinking.

JUDGEMENTS OF CRITICAL THINKING ON PHYSICS LESSONS

The aim of our investigation was to find out how students could solve our suggested tasks. The survey about correlation between a general test of critical thinking (Assessmentday, 2020) and test with our physics tasks was carried out. As a research sample, 29 participants were chosen. The statistical analysis of the data was carried out using R software. The Spearman correlation coefficient was determined $r_s = 0,563$. This means variables can be considered moderately positively correlated. The suggested tasks may be used to test critical thinking on physics lessons. In this contribution, we will present our test and selected tasks with their evaluation described.

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