

Abstract

TRÚSIKOVÁ, Anna, Mgr. *Critical Thinking and Indicators of its Assessment in Physics Education*. [PhD. thesis]. Comenius University in Bratislava. Faculty of Mathematics, Physics and Informatics. Department of Didactics in Mathematics, Physics and Informatics. Supervisor: doc. PaedDr. Klára Velmovská, PhD. Professional qualification level: PhD. Bratislava, 2022. 126 p.

The thesis focuses on critical thinking and indicators of its assessment in physics education. Various definitions of critical thinking, characteristics of ideal critical thinker, the importance of critical thinking in Science education and connection between Bloom taxonomy and critical thinking were summarised. Within the theoretical part, the results from several researches focused on critical thinking were outlined as well. The following indicators which can be used to assess the critical thinking in Physics classes were proposed: 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 conclusion; and self-regulation. The tasks which represent particular indicators were proposed, tested and modified. The results obtained in the modified proposed tasks were compared with the results from critical thinking test and correlation was calculated. The results from pilot testing suggest that tasks might be appropriate to assess critical thinking in Physics classes. However the results from testing with more students suggest that the coefficient of correlation is not high enough.

Key words: critical thinking in Physics, indicators of critical thinking, critical thinking Physics problems.