Proposal for poster 2

Education

Learning assessment

conference@cented.org

1 – Title:

Statistical-based calibration procedure/modification of scores as the motivation tool

2 – Author´s name and e-mail

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3 – Presentation type – poster

4 – Abstract

Frequently used assessment method is scoring of written solutions of some tasks, questions or problems. According to Gaigher (2005), physics instructors generally believe that problem-solving is a reliable way to demonstrate understanding of physics for purposes of evaluation. Physics problems or test items are often divided into a certain number of parts that are scored relatively independently according to the scoring scheme proposed by the authors. We consider scores obtained for solutions of one particular part to be random variables. However, according to the study of Physics Olympiad solutions (Hanáková, Teleki, 2016), the dependency between particular partshas been uncovered by statistical tools, such as correlation coefficient or covariant matrix. The interpretation can be that students need some knowledge and skills to solve both parts of physics problems, for which we identified dependency of random variables.

The aim of this study is to present and graphically interpret unambiguous and generally applicable tool for modifying scores – first, to obtain independent random variables by using decomposition procedures on statistical data, and then, to calibrate scoring scheme in order to increase success of physics problems solvers. Success is an important factorfor motivation.

5 – Author´s brief Biographical information

Monika Hanáková is since 2015 a PhD student at Department of physics, Constantine the Philosopher University in Nitra, Tr. A. Hlinku 1, 949 74 Nitra, Slovakia. My current study program is called Theory of Teaching of Physics.

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