



Contribution ID: 15

Type: **not specified**

Reporting Experimental Results of a Galilean Teaching Case study

Thursday, September 10, 2020 3:35 PM (25 minutes)

Based on previous works such part of doctoral studies of one of us (VC) at the Lille University, France, a mixed with open-ended and closed-ended inquiring concerning *Force Concept Inventory* was arranged at *Liceo scientifico "F. Sbordone"* in Naples. Therefore, an analysis of understanding of physics topics starting from the students' difficulties and from their common sense knowledge was experimentally implemented, as well. Then a feedback on the effectiveness of the historical educational path about Galileo and motion (Pisano and Cioci 2020a, 2020b) – and more generally of the Nature of Science Teaching in history of physics – was produced. Particularly, the experimentations was conducted for three years with more than one hundred students participating. The results were also compared with a control group of about seventy pupils that followed a traditional path. The post-analysis of the misconceptions of students learning will be set into different learning-historically categories giving a related score (non-parametric statistical analysis methods were chosen).

Selected References

- Hestenes D., Wells M., Swackhamer G. (1992). "Force Concept Inventory". *The Physics Teacher*, 30, pp. 141-158.
- Pisano R., Cioci V. (2020a). *Galileo's Free fall into History Physics & Nature of Science Teaching*. In: Esposito S., Fregonese L., Mantovani R. (eds.) *Proceedings of 38th SISFA Congress*. Pavia: Pavia University Press, pp. 271-278.
- Pisano R., Cioci V. (2020b). *Nature of Science Experiments: Exploring Galilean Physics of Motion*. In: La Rana A, Rossi P. (eds.) *Proceedings of 39th SISFA Congress*. Pisa: Pisa University Press, in press.
- Wilcoxon F. (1945). "Individual comparisons by ranking methods". *Biometric Bulletin*, 1 (6), pp 80–83.

Primary author: Dr CIOCI, Vincenzo (CIREL, University of Lille, France)

Presenter: Dr CIOCI, Vincenzo (CIREL, University of Lille, France)

Session Classification: Didattica e divulgazione in Fisica

Track Classification: sisfa 2020