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## An active interdisciplinary learning path on measure in a vocational school

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A learning path in an initial class of a vocational school in wellness is presented. The challenge was to engage students, whose interests were very far from science, in an active exploration on how a body can be measured. Students discovered the existence of uncertainties linked to the process of measurement and explored how they could be minimized.

Despite selected physics topics are essential for understanding many professional subjects and practices, their relevance in everyday situations, in which students will ultimately work, often remains hidden. Current practice is very different from one school to another. Sometimes laboratory is not properly equipped and usually physics and vocational teachers do not interact in their educational action. Thus, physics is usually perceived as a boring set of laws very far from professional experience.

Theories and empirical research about the interrelation of motivation and learning have a long tradition in education [1]. From an educational point of view, it is essential to understand why and how students become interested in new content and subject areas [2]. Interest and motivation are seen as basic concepts to describe students' learning in a physics classroom. Empirical findings suggest that an interest-based motivation to learn positively influences both how learners realize and organize a given learning task (e.g., the kind of learning strategies used) and the quantity and quality of learning outcomes [3]. Exploring and understanding how transfer of knowledge can be made more effective in vocational education is an unavoidable step for improving the learning process in this context [4].

A learning path on measurement was designed within a regional project aimed at developing the teaching/learning process in science through innovative laboratory activities. The learning path was realized in the context of the Hygiene and anatomy initial classroom (age 15) of a professional school in wellness (beautician).

The initial activities were an individual reflection on what measures to carry out to evaluate the physical form and a collective discussion on the usefulness of the proposed measures. Measurement were realized in practice: students proceeded by trial and error, gradually highlighting the problems that led to an autonomous method of measuring.

Since the laboratory was performed in classroom with an everyday life tool, the approach was very effective in the vocational school context.

### References

- [1] M. K. Alderman, Motivation for achievement: Possibilities for teaching and learning, 2nd ed., Routledge, New York, 2008.
- [2] R. Trumper(2006), Factors Affecting Junior High School Students' Interest in Physics, Journal of Sc. Edu. and Technology 15 47.
- [3] J. Baumert and O. Köller, Interest research in secondary level 1: An overview. In L. Hoffmann, A. Krapp, K. A. Renninger, & J. Baumert (Eds.), Interest and learning: Proceedings of the Seeon Conference on Interest and Gender, IPN, Kiel, 1998, 241.
- [4] D. Guile and M. Young, Transfer and transition in vocational education: Some theoretical considerations. In Tuomi-Gröhn T. and Engertröm Y. (Eds.), Between school and work. New perspectives on transfer and boundary-crossing, Elsevier Science, Oxford, 2003,63

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no

**Level for award**<br>&nbsp;(Hons, MSc, <br> &nbsp; PhD, N/A)?

N/A

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