
Implement and evaluate the problem-solving approach

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Abstract

”How much decreases the temperature of a glass of water when an ice cube melts in it?
” This question, asked with the thermodynamic data of water and without any guidance is one of the ” problem-solving ” given in tutorials to students who follow the module” Energy and entropy ” at UPMC (1st year - physics chemistry geoscience curses). The aim of this activity, intermediary between the guided exercise and the project is to conduct the student to mobilize knowledge, skills and competences to address a situation in which he must achieve a specific goal, but where the path to follow is not provided. How can this active pedagogy help to manage the diversity and heterogeneity of our students without increasing the number of specific modules and fragmenting the curriculum? How does it help the students to be more active in their training? How to prepare students to address an exercise in ”problem-solving”? How to evaluate the work done when various paths can lead to the result? These issues will be addressed through an experiment conducted for 5 years in the science curriculum and Po science and science and law (3 ECTS - 60 students) and then extended since 3 years this year in L1 module ”Energy and Entropy” portal PCGI (9 ECTS - 450 students, 18 groups).

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