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Representation of history of science in teaching physics: Students' knowledge about physics scientists

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A number of students, as their field of interest, prefer social sciences to science. History of science can be the bridge between science and social sciences.[1],[2] Therefore, it can be a useful tool for getting students with an affinity for social sciences interested in physics and vice versa, it can get students with an affinity for physics interested in social sciences. History of physics has an important role in teaching physics.[3] In most schools, at all levels of education, a logical approach is most often used in physics teaching. In this approach the best way of presenting the subject matter to the students is being chosen, without regard to its historical development. The history of science material is occasionally presented (for instance, contributions of various scientists to physics, facts about important scientific discoveries, life of scientists and similar). The research aim was to assess students' knowledge about physics scientists in order to get insight into the extent to which history of science material is present in teaching physics in Serbia. The research was carried out with a convenient sample that included students interested in physics because it would be expected that these students were attentive in physics classes. Research sample consisted of 28 university physics students (17 enrolled in the first and 11 in the second year) in Novi Sad, Serbia. The students were from various regions of Serbia, mostly AP Vojvodina. The questionnaire about physics scientists that students have learned about in primary school and high school physics classes (with open ended answers) was administered to students during their attendance in mandatory classes that they take. Research results showed that only eight scientists were remembered by more than 20% of students. Interestingly, there was no scientist that all students remembered. Albert Einstein and Nikola Tesla were listed most frequently as scientists that students learn about in primary school and high school (by the same number of students, 85.7%) and next was Sir Isaac Newton (64.3%). All other scientists were listed by less than 50% of students. In total 31 scientists were mentioned by students, but 15 of them by only one or two students. More detailed analysis was carried out and its results were presented and discussed. Based on the results it can be stated that the extent to which history of science material is present in teaching physics in Serbia is varying from school to school. Accordingly, it can be suggested that some basic knowledge about physics scientists and history of science in general need to be presented in physics classes regardless of the teacher's preferences for teaching material.

References

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