

Abstract

Among students, interest in Science is decreasing, despite the fact that knowledge of Science can be useful in many real life situations, such as medicine, conservation etc. Science education can also simply help to form a positive attitude towards nature. There are many possibilities of increasing students' interest in Science that could increase their motivation to study. Apart from Inquiry Based Education or Prescribed Practical Activities, working with devices used in research practice is one of the possibilities. If a school doesn't own such devices, there is a possibility to borrow them, or to work with them via the Internet. Possibilities of remote access to these devices are subject to research abroad, and this trend is also starting to appear in the Czech Republic. One example of a device that can be borrowed by schools is a fluorescence microscope at the Department of Didactics and Education of Biology, Faculty of Science, Charles University in Prague.

In my thesis, I was investigating the influence of the presence or absence of this fluorescence microscope on the knowledge of students. Research was carried out in four different classes at two secondary schools in Prague. Students who took part in this research were from the first year of a four year secondary school or from the third year of a six year secondary school, so their ages were between 15 and 17 years. Students were divided into two groups, according to the teaching methods during the research. One group had the opportunity to work directly with the microscope ('S' – with), the other one worked with picture material obtained from this microscope ('BEZ' – without). Both groups completed a pre-test, a 90-minute-long practical activity and post-tests 1 and 2. Students were subsequently divided into three groups according to their score in a lab report, which was a part of the practical activity ('Pečlivost' – conscientiousness). It has shown that the difference of results between the groups 'S' and 'BEZ' is not statistically significant. A more significant relationship was observed between the score in the tests and the score in the lab report – 'Pečlivost'. The better (more conscientiously) did the students fill in their lab reports, the better was their score in the following tests. Generally it can be said that in both groups students have gained new information and their knowledge was bigger than at the beginning of the experiment.

Key words: fluorescence, microscope, practical activities, practical courses, students' knowledge, testing the knowledge