USB-microscope in chemistry and geology – a toy for geeks or a teaching aid?

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Abstract

Different types of microscopes are often used in schools to demonstrate and observe small (and invisible) objects. A binocular microscope is usually used to observe opaque objects. These devices make examining larger, opaque 3D samples possible. The so-called USB microscope has appeared on the market in recent decades and it could be an alternative to a stereoscopic microscope due to its properties, such as durability and small dimensions. However, these devices are not widely used in teaching yet. Still, the question is whether their use would not cause difficulties or be less illustrative for teaching, e.g., due to the limited field of view. In this regard, the contribution deals with a comparison of binocular and USB microscope in terms of pupils' motivation in working with the device and also tries to evaluate the user experience of pupils. For this purpose, new educational activities were prepared in which students used binocular and USB microscopes. Subsequently, pupils performing the activities evaluated the work with them through a questionnaire survey. The survey results suggest that in terms of students' intrinsic motivation, it does not matter whether the respondents work with a binocular or a USB microscope and rated the activity with both devices as fun and motivating. In conclusion, the USB microscope is a useful tool for education in science subjects with some reasonable advantages compared to the binocular microscope.

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Keywords

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