THE USE OF ANAGLYPHS IN EDUCATIONAL PROCESS

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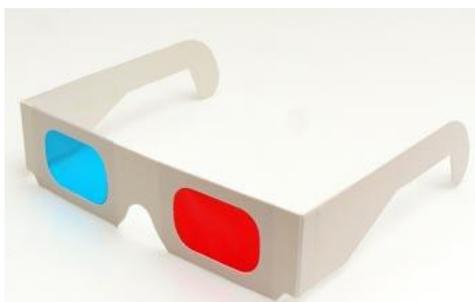Mgr.Rybenská Klára (First Private Language Grammar School Hradec Králové)

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Introduction

The theoretical part is divided into the section dealing with anaglyphs (the observation of anaglyphs, the types of anaglyphs and the use of anaglyphs in educational process) and the section engaging in stereoscopy (natural and artificial stereoscopic vision, geometrical gist and it also explains terms like stereometry or linear perspective). The aim of the practical part was to make my own anaglyphs and to describe the process of making anaglyphs in Pixlr Editor and Adobe Photoshop. The practical part also compares various programmes for making anaglyphic images and points out their pros and cons. Various anaglyphs, which can be used for teaching chemistry, mathematics, physics or ICT, were also created within the practical part of the thesis .

The practical part

I have created the anaglyphs from one image, which was duplicated and moved (I removed the red colour from the first of the doubled images, the blue and green colour from

Picture 1 –Anaglyph glasses, Source: hitechshop.cz

the second one). I have composed an anaglyph image creation process in Adobe Photoshop and Pixlr Editor. If you want to see the 3D effect of anaglyphs, you must wear the blue (green) – red glasses.

I have tried 5softwares for making anaglyphs and I drew up a chart which points out their pros and cons. In each of them I made the same anaglyphic picture and then I compared the picture with the others I made.

Results

Firstly, within creating anaglyphic picture in Adobe Photoshop, I chose a part of the picture which will appear more (in this case a car) than the selected background. The newly-emerged white place was filled in with colour. Two layers arose – the car and the background – which were duplicated (therefore there were 4 layers in the end). I removed the green and the blue colour from the first layer of the car (the car was just red at that moment). Then I removed the red colour from the second layer of the car (the car was turquoise). I shifted the red layer of the car 6 points to the left, the blue one 6 points to the right. Then I did the same with both of the background layers. In order to make them less outstanding, I moved them 3 points only. The final picture was ready and the last thing was to save it.

Picture1 - How to create anaglyph images in Adobe Photoshop, source: Author, 2018

Conclusion

I made 25 anaglyphs in the practical part of the thesis. On some of them, the „3D" effect was more evident than on the others. Anaglyphs are one of the oldest stereoscopic techniques and theirs drawback is the loss of colour. Nowadays, more advanced 3D technologies exist. Moreover, I assessed the advantages and disadvantages of various anaglyph-making programmes. Anaglyphs created for the needs of the First Private Language Grammar School in Hradec Králové were included in teaching chemistry, mathematics and ICT and were practically tested.

References

- ŠIMEK, Daniel. *Využití anaglyfů ve výuce*. První soukromé jazykové gymnázium Hradec Králové, 2017. Středoškolská odborná činnost.

- MUCKE, Helmut. Anaglyphen: Raumzeichnungen : eine Anleitung zum Konstruiren von Raumbildern. Leipzig: B.G. Teubner, 1970, 94 s.

- STOLZE, F. Die Stereoskopie und das Stereoskop in Theorie und Praxis. Halle: W. Knapp, 1894, 135 s., il. Encyklopädie der Photographie.