

Didactic revolution with Merge AR/VR headset & cube

Keywords: augmented reality, virtual reality, STEM, 3D, object viewer

Methodology

Observation of the phenomenon, fact-finding investigation, direct experimentation in the classroom/online, survey of student, single case study, meta-analysis.

Research and issues

The way of learning the various disciplines is now changing and after the pandemic (Covid-19) it was necessary to review the teaching and therefore make use of innovative technologies and devices to make the school and therefore the university work. Teachers have gradually realized that the educational offer must necessarily be revised. Among the novelties, I personally experienced the great value of Merge Cube and the Viewer by presenting 3D objects created by me with Blender and loaded on the "MERGE EDU Dashboard". The holographic cube for teaching (Merge Cube) allows teachers and students to hold virtual and interactive worlds in the palm of their hand that they can rotate at will to allow specific navigation experiences (Augmented Reality). With the Cube it is therefore possible to learn in a truly innovative and fun way, moreover, there are several Apps that you can download. With Merge, learning (recommended age 10+) and curiosity in the classroom are sure to benefit. By means of the cube it is possible to simulate the presence of the digital 3D object, in fact, just rotate it to obtain in real time the representation on the screen of the device used (smartphone or tablet).

Teachers can test their students by viewing together elements that would normally escape our gaze and thus explore, for example, a galaxy in the palm of the hand for astronomy (but also investigate the core of the Earth) or hold fossils and ancient artifacts for paleontology or dissecting a "virtual frog", the exploration of a DNA molecule to better prepare for the fight against disease is amazing. To get started just download the Merge EDU app on your iOS or Android device and even on the computer:

<https://apps.apple.com/us/app/merge-explorer/id1453098606>

or

<https://play.google.com/store/apps/details?id=com.MergeCube.EDUExplorer&hl=it&gl=US>

or

<https://www.microsoft.com/en-us/p/merge-explorer/9nz3ss7dpkwf?activetab=pivot:overviewtab>

To proceed you will need to point the camera of the device used towards the cube and you can start the lesson by interacting with the elements selected for the simulation.

At this point, by pointing the camera of the device used towards the cube, you can start the lesson and interact with the elements selected for the simulation (<https://explorer.mergeedu.com/link/c47>). To refine Mixed Reality experiences, the rubber viewer is useful, which can also

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be used by inserting a Smartphone for remote teaching. Thanks to the viewer, the student can immerse themselves in virtual worlds of all subjects (from science to history), take trips (or walk with dinosaurs), using the archive of shared applications or those also available on the Google Expeditions platform.



Figure 1 Prof. Massimiliano Minaudo during the lesson and Merge experimentation.

Short technical clarifications

Merge Cube can be used individually or with a headset for which the Academy's Choice Award winning model and nominated by CNN as the best VR headset is recommended: Merge AR/VR headset.

In conclusion, with the aid of the AR/VR viewer, students of all levels of school, in the classroom or online, can obtain information that would not be perceived by our senses.

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Conflicts of interest

The author has no conflict of interest.

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