

VR technology expands the possibilities of EdTech

Every child is born curious — they want to know why things happen and how it works. Kids are natural scientists but as human-sized beings, we're not very good at understanding the exceptionally small or exceptionally large, and that's where most of science takes place.

Learners can't see and experience atoms, molecules or DNA, which is what makes science so hard to grasp. Virtual reality (VR) can change our experience of scale. We can shrink you down to the size of an atom and you can explore and play at that micro-level.

VR is not a cure-all for problems in the education system, but there are a few areas where it has real value: science is one of them. Visualisations and interactions help learners build an intuitive grasp of fundamental concepts. This represents an entirely new way to access complex concepts in science and it's that piece of the puzzle that excites me.

We founded MEL Science because we believe we can do more to nurture every child's natural interest in science. We are specialists in two areas:

1. Hands-on experiments that — as every science teacher will tell you and as you might remember from your own experience of school — are magical; kid's eyes light up, we ignite their curiosity, and they are inspired to ask questions and learn more.
2. Interactive simulations, which allow children to visualise the world of atoms and molecules, making science easier to grasp. We show this in VR

to create a more immersive and engaging experience.

Our diverse customer base means we've had an opportunity to test VR equipment in both the home and school environment, and so we have been able to refine our product to meet and exceed expectations. In schools — where headsets are not always available or various barriers prevent some students from getting involved — we have explored flat mode solutions, either via apps or browsers. Whilst flat mode solutions are a little less immersive than the full VR experience, it allows all students to access at least some of the benefits of immersive learning.

The link between VR and learning

As scientists, we believe in rigorous testing too. To prove efficacy for learning resources and the research we did, we participated in a *random controlled trial by the New Jersey Institute of Technology*.

The study found that MEL Science's VR resource improved student's engagement and test scores, concluding that students retained the information they learned during their VR sessions better than students who had no VR element in their lessons. It proved the theory behind our underlying specialism, that hands-on experiments, married to interactive simulations could inspire the next generation of scientists.

The impact of COVID-19 on VR for schooling

COVID-19 has also materially changed the ecosystem. School closures have been a huge strain on teachers as they switched to online lessons with little to no training or experience in most cases.

At MEL Science, we saw increased usage of our VR tools, as all that is needed is a cardboard headset and a smartphone — meaning that it is broadly accessible for many families.

In addition to this, we saw the challenges that families across the world were facing trying to educate remotely, and so shifted our priorities to create free resources to help schools and parents during this extraordinary time.

We have certainly crossed the Rubicon for technology in schools. After being forced to move all lessons online, we are hopeful that more schools will embrace technology in the return to the classroom. VR has the potential to be a step-change in helping students visualise concepts in science and engage a whole generation in a way that has never been done before in education.

Vassili Philippov is CEO and co-founder of [MEL Science](#), a next generation science education platform.

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