

The role of VR in education

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FULL TEXT

Of the various technologies that have been embraced by the global education sector in recent memory, few hold as much opportunity or are as highly sought than virtual reality (VR). Whether bringing the past to life through historic simulations, transporting students instantaneously to other parts of the world, or delving deep into the anatomy of the human body, VR along with other similar reality technologies, are helping to enhance the overall teaching and learning experience.

As one of the most recognised brands in the global virtual reality space, HTC has been a key supporter in the recent advancement of VR technology and content. It's most prominent virtual reality offering to date is the HTC Vive, a room-scale VR solution launched back in 2016 in close collaboration with the Valve Corporation.

Since that time the company has continued to build on the basic Vive Package adding peripherals in the form of a universal tracking device, Vive Tracker, as well as wireless capabilities realised through a collaboration with TP Cast. In addition to advancing the core hardware HTC has also launched a VR subscription service, as well as investing in developer platforms.

Within the Middle East region's education space, HTC has worked diligently alongside educators to raise awareness on the benefits and application of virtual reality technologies. Its high-profile projects include collaborations with UAE's Ministry of Human Resources, Telecommunications Regulatory Authority (TRA), and the nation's Ministry of Education. The company also participated in the recent JESS Digital Summit, where it highlighted the utilisation of VR in classrooms.

"Schools like JESS Dubai are already using VR technology and Vive to engage students, and we expect more and more schools to bring VR into the classroom very soon," comments Nikitas Glykas, president, HTC Middle East & Africa.

"We have already been in touch with a number of ministries and schools in the region about these plans, and the outlook is very promising over the next 6-12 months. We are also working with developers to create new content and open tools that educators can subscribe to."

Highlighting specific cases where VR serves as a practical alternative to traditional teaching aids, Glykas shares that virtual reality can be greatly beneficial to theoretical knowledge teaching and practical skills training. In the case of the latter, students can use VR to improve their operational skills, while at the same time improving their sense of involvement in the classroom.

"Recent studies have shown that the application of VR in education can lead to dramatic improvements in academic achievements and long-term knowledge comprehension. Children with learning difficulties can also accelerate to the top of the class in studies where they've been able to use VR compared to solely traditional learning methods," adds Glykas.

"Currently, we are working on an education platform on Viveport and a classroom management system that will be launched in the near future to support educational content upload via the Viveport developer console."

As part of its continued support for the advancement of the virtual reality technology market, HTC launched Vive X, a \$100m global VR accelerator aimed at supporting companies active within the field. Unveiled back in April 2016, the initiative has seen investments in more than 30 companies globally.

At the start of 2017, the consumer electronics company also launched VR for Impact, a \$10m program that is

aimed at funding VR projects in support of the United Nations' Sustainable Development Goals.

"We see a tremendous change in education in the near future, and HTC Vive is investing heavily in virtual reality as this will transform how school children are taught by grabbing student attention, encouraging true learning through all senses, and providing access to the best teachers and schools from anywhere in the world," adds Glykas.

HTC's president for MEA is quick to point out that despite the increasing popularity of VR in education, there are a handful of barriers impeding widespread adoption. The first lies with the steep price of the technology, which to date has only been affordable by private schools with available funds.

Price cuts over the last year however has made the technology more attractive, particularly with government entities who are considering VR adoption for large-scale initiatives at the city and municipality level.

The second challenge has been with the lack of quality content for educators, a viewpoint shared by GEMS Education, a Dubai-based global education company that recently began its own exploratory journey with reality technologies.

"Currently, the biggest barrier is a lack of quality content anchored in solid pedagogy – much of what has been developed could be seen as gimmicky or more easily replicated through a simpler medium. In addition, VR is not easy to develop for—this adds to the bottleneck of quality products," explains Michael Gernon, senior vice president, Global Head of Innovation, Research and Development, GEMS Education.

"Going forward, augmented reality (AR) and mixed reality (MR) will make significant inroads into the market, and these experiences will give much more consumer choice. It may well be that schools will choose one technology over another, especially bearing in mind Apple's heavy investment in AR, and Microsoft's engagement in MR." Gernon adds that while VR can be a highly immersive experience, it can also be an isolating one where users are essentially separate from the world around them. He expects in the future however, there will be a bigger emphasis on collaborative products, as well as designs able to facilitate multiple user inputs.

GEMS Education is currently assessing the capabilities of VR technology, as well evaluating the challenges surrounding wholesale adoption. Its pilot VR project challenges students to devise their own VR experiences around a topic of their choosing, which in turns encourages development of their critical thinking and decision making.

The SVP is quick to point out that VR is not an end-all solution in itself, but rather one part of the whole lesson, describing it as a, "short experience that helps students visualise, process and understand key concepts that would be difficult to otherwise explain."

Highlighting the possibilities that the technology holds for education, Gernon shares that VR opens up new ways for institutions to tackle their respective curriculum. For example, history students can use the technology to a 360 degree simulation of historic cities and battles.

Similarly, biology students can utilise VR to navigate various aspects of the human anatomy, viewing close-up how each of the organs operate. Another popular software that is on the rise is Google Expeditions, a VR experience that helps transport students to different locations across the globe.

"In using VR, here is great potential to transport and immerse learners in environments and locations – from the distant corners of the earth to the world of nano-engineering. The opportunity to immerse learners through virtual field trips where they can interact with content and environments in this way is truly transformational," explains Gernon.

"It is interesting that so many medical schools are applying VR within their courses – the end result should be that our doctors of the future have new ways of approaching and understanding complex scenarios and aid diagnosis and treatment. If this were applied in schools, our students' understanding of new concepts and scenarios would also be much deeper and richer."

Moving forward, Gernon expects to see a substantial uptick in the number of research studies within the field, a development that he asserts key players of the K-12 sphere will need to pay attention to. In addition to highlighting key benefits and identifying potential usages, these studies will also explore the risks associated with long-term

use of VR and the technology's impact on health and well-being.

"Ultimately, VR has the potential to transform learning, bringing students ever closer to real world learning in a way that cannot be achieved in the conventional classroom or brick-and-mortar school," says Gernon.

"MR and AR usage will rapidly increase, and schools will begin to become more selective in identifying the right tools to use and the most appropriate mode of reality," he concludes.

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