

Students Boost Recollection and Engagement With Help from VIVE VR and VictoryXR



Virtual learning environments make teaching and learning easier.

In a time where information is more accessible than ever, we somehow find ourselves in the middle of a learning crisis. Though surprising to some, the World Bank—an international financial institution that provides loans and grants to governments of low- and middle-income countries—has the research to validate the problem. Such things as health care issues, systemic pitfalls, and overall quality of education are just some of the contributing factors. **So the next logical question is how can this be fixed?**

A Disjointed Education

To find a solution, it's necessary to get to the root of the problem. While there are many factors involved, the issue is thought to stem from a general approach to teaching itself. Traditional methods rely heavily on presenting information to students and then evaluating them based on their information retention. Not only do these practices turn them into passive participants, but it also doesn't account for different

learning styles or incorporate critical thinking skills. The same research from the World Bank also revealed that almost half of all students do not get to enjoy the benefits of a complete education. This puts even more focus on the importance of keeping students engaged and avoiding cognitively overloading them with abstract lessons. With all of these factors contributing to the decline of education quality, finding an answer would require taking a new approach.

A Fundamental Partnership

It became apparent that a successful remote classroom experience depended heavily on the ability of students to recall lessons. For that to happen, engaging the students was essential. Finding hardware that best fit their specific needs was critical for VictoryXR. That's why they turned to industry leader VIVE, with all-in-one headsets powered by Qualcomm Snapdragon mobile processors to enable truly immersive virtual reality experiences. When paired together, users get to experience their virtual world through a headset that includes 30 modules that meet next-gen science standards. The VIVE all-in-one VR system bundle also comes with other features, like unrestricted Kiosk Mode. It allows for easy app limitations and navigation, helping to reduce distractions while keeping the focus on the course being taught. The mobile device manager (MDM)

feature also makes IT deployment quick, convenient, and secure. This approach makes a lot of sense when conferring with experts in the industry.

Ask someone like Julie Smithson—the Chief Education and Learning Officer at MetaVRse, a company that specializes in creating accessible 3D platforms—and she'll tell you "immersive media has the power to democratize education."

Higher standard of education can basically become more available to everyone, not just a select few.

Finding The Motivation

As new studies on XR in the classroom started to emerge, it was clear that using cutting-edge technology would be the best way to address these modern-day challenges. This would be a crucial first step for how educators could transform the way they teach students and have them interact. Research like that from the University of British Columbia identified three factors that increased motivation in student:



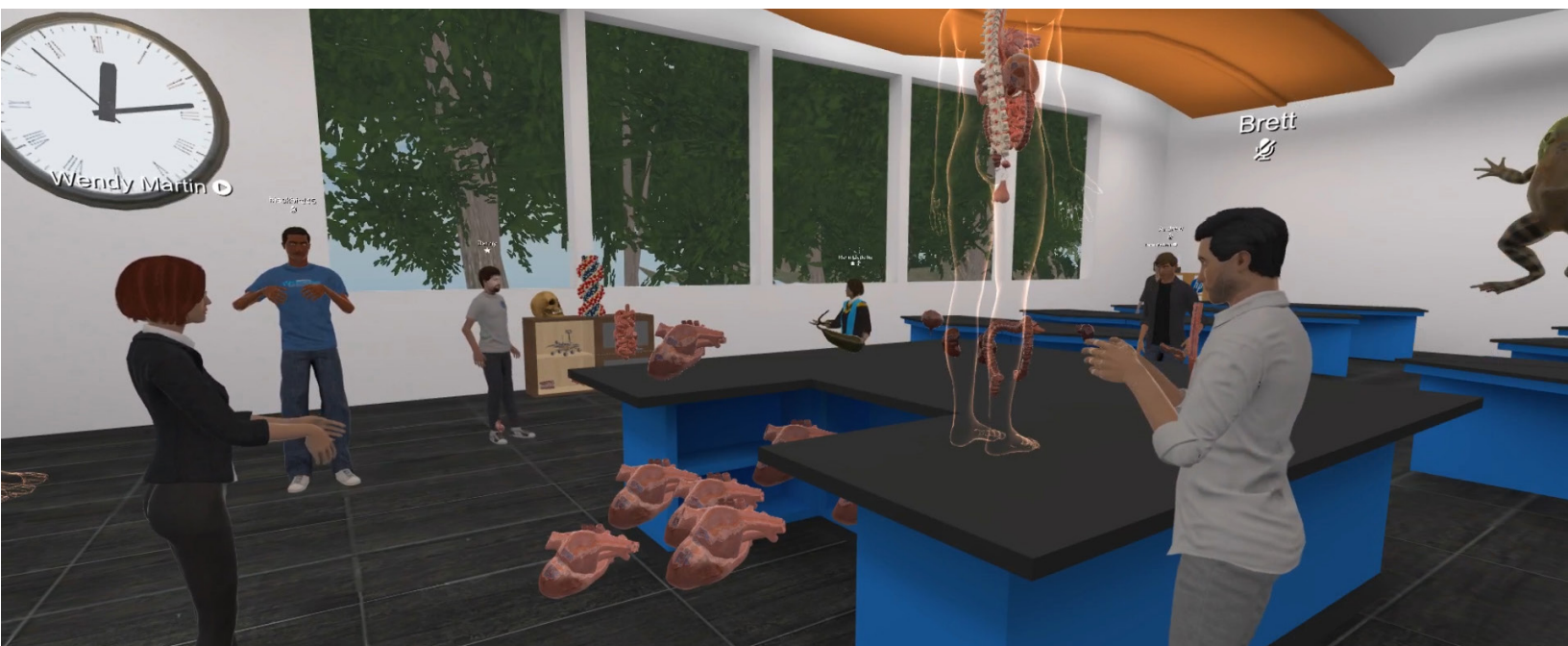
personal relevance, choice and control, and mastery. As education moves more and more into the digital realm, fulfilling these vital pillars became more difficult to achieve. Thanks to the incorporation of XR, learning can take on more immersive aspects, which makes abstract concepts easier to grasp. Such subjects, like physics, become more relevant in their application to the real world. Most importantly, students are more active in the learning process as they move through each lesson at their own pace.

“When kids love to learn, they are absolute sponges. When students put on the headset and enter this new world, they love it. Suddenly science is no longer a chore. It’s gamification of learning,” says Steve Grubbs, CEO and Co-Founder of VictoryXR. “That’s what the VictoryXR curriculum combined with the VIVE Focus Plus delivers.”

This leads to increased curiosity, promotes active engagement, and provides the positive stimulus that allows students to grow while mastering the material.

Lightening The Cognitive Load

When consistency is key, reducing the time it takes to absorb the materials is extremely beneficial. Since our cognitive system uses parts of the brain dedicated to attention and memory, a great deal of effort is needed when it comes to topics like STEM. Due to the high-level of abstract thinking, it’s easy for the cognitive system to get overloaded. Given the fact that earth science, physics, biology, and chemistry are usually taught through text or videos—the brain has to do extra work. Translating statistical information, like words and pictures, into more retainable real-world representations is a lot to handle, cognitively. If students are taught faster than they can process information, retention becomes very difficult. Being immersed in an interactive environment helps to enhance spatial awareness—which is how we naturally organize information in our minds. This makes XR better suited to improve a person’s recall—something



researchers at the University of Maryland have seen firsthand in their studies. By enabling learning that's more involved, students can absorb the concepts and ideas being taught, faster.

This experiential learning method not only helps improve memory, it also engages students with a more hands-on approach, making it easier to connect with students of all different types of learning styles.

Students can literally experience handling objects in their virtual environment, since XR is especially effective at improving conceptual understanding through interaction with the content. By using both their minds and body, students can do things like dive into the genetic makeup of a DNA strand, cruise through solar systems, or go back in time. Being able to transcend the physical world to transform abstract teachings into more perceptible representations is invaluable. More importantly, it's a lot of fun, too.

Learning Through Doing

The benefits of a non-tethered XR device cannot be understated. Since body movements can facilitate cognitive activity, interacting with objects within virtual environments can have a positive impact on learning. One of the hallmarks of true retention is the transfer of knowledge. This enables a learner to recognize how the information being acquired can be applied in a real-world context. With XR environments facilitating this process, students are allowed to put their learnings into real-time practice while organically assimilating knowledge by interacting with one another. They're also gaining proficiency at tasks that require repetition while occupying a safe setting in which to do so. According to the general manager for education at Microsoft, Dan Ayoub, "it fosters a sense of togetherness. Unlike two people staring at a screen, it lets you cohabit a virtual space together."

Connecting On A Personal Level

The way a teacher presents a lesson and the way an individual student picks up that information isn't



always correctly aligned. Take into consideration that you can have dozens of students in one classroom and that task becomes even more difficult. Varying styles of learning—like visual, auditory, tactile, and kinesthetic—must also be taken into consideration. XR can provide personalized learning environments that appropriately suits each individual and their needs, bucking the trend of one size fits all. With the ability to track key performance indicators, educators can follow the progress of every student, as well as apply assistance and attention to areas most needed. When it comes to accommodating those with learning difficulties, disabilities, or who require individualized education plans (IEPs), XR proves to be even more of a game changer. It allows for a more controlled cultivation of students who excel with self-directed learning, behaviors, values, and attitudes by adjusting the pace in which subject matters are covered. The United States Department of Education’s Office of Special Education and Programs believes in using VR so much that they invested 2.5 million dollars back in 2019. That money was specially used to nurture the social skills of students with disabilities through VOISS (Virtual Reality Opportunities to Implement Social Skills). Such programs as the one developed

by researchers at the University of Kansas Center for Research on Learning and Department of Special Education aims to make further advancements in this area. Their main goal was to place students in locker rooms, school buses, classrooms, and other common social settings to develop emotional learning by managing their reactions to each situation. By nurturing the social skills in kids with disabilities, VR once again demonstrated its versatile application in the classroom.

Bottom Line Benefits

One of the greatest inroads to the democratization of education has always been accessibility. With XR becoming more economical, it has opened up more learning alternatives to students from all backgrounds. “XR is helping bring equity in education,” says Steve Grubbs, CEO of VictoryXR.

“STEM labs are great additions to schools and a huge asset to students, but it may take up to



\$2 million to set up a state-of-the-art lab in schools.” When compared to the cost of twenty-five VIVE all-in-one VR headsets—which altogether runs roughly \$30k and has VictoryXR pre-loaded—the savings are quite noticeable.

With the forecast bureau of Labor Statistics projecting an 11% STEM jobs growth in the U.S. by 2026, education and training needs to be more at the forefront. By using XR, schools can construct virtual labs at a fraction of the cost it would take to build a physical one. More importantly, budget restrictions that create unequal distribution of resources and put schools in lower economic communities at a disadvantage are less of a concern. Cutting costs, doesn't mean shortchanging the learnings, however—as students will get to use the same tools and instruments as if they were in an actual lab. Virtual field trips also offer a vast array of possibilities by allowing schools who struggle with financial constraints to provide the same

experience in a virtual setting—as well as some new ones—like museums or theaters in foreign countries. These extended trips not only broaden the capabilities of educators, but also enrich geography, history, and literature courses—as well as many others. From virtual labs that allows students to use the same tools they would in a real one to exploring museums, the possibilities of XR are wide-ranging. Unlike taking field trips in the physical world, virtual trips can open up a lot of doors, without ever leaving the classroom.

Teaching Teachers

The most important part of any classroom are the teachers leading each lesson. That's the reason another World Bank study suggested the lack of qualified teachers was a leading cause behind the global learning crisis. Since the education system's success relies heavily on properly prepared and supported teachers, it's imperative to take the first step in providing them with everything they need to effectively educate their class. Since XR environments are also well suited in providing professional development, it's a natural fit with educators. Practicing lessons,





improving instructions, and encouraging participation are things that can be perfected in a virtual classroom. This safe space allows them to try different ways to take the real-life challenges of dealing with student behavior. One of the biggest advantages is the ability for teachers to role play conversations with special needs and at-risk students. Thanks to this effective tool teachers can better identify those who require extra help, train for a bevy of classroom situations, and better prepare themselves—in general—for whatever their job requires.

A Bright Future Ahead

Given all the compelling benefits behind a virtual classroom experience, it's no surprise why VictoryXR and VIVE VR work so well together. By focusing the attention of students through the use of immersive environments, educational institutions around the globe can cultivate curiosity and build enthusiasm. It also gives teachers a more effective way to implement their curriculum. In regard to the overall goal of better facilitating the transfer of knowledge, it's the ideal way to stimulate students and strengthen their recall. With the use of XR, establishing relevance between the lessons being taught and how they relate to

real-world applications is invaluable. This ability to interact, explore, and experiment in VR only bolsters the engagement that's so crucial to the learning process. The benefits of improving classroom collaborations, better enacting remote lessons, and tailoring education to suit the needs of each individual cannot be understated. Teacher of the year finalist Wendy Martin puts it best when she said "...VR offers them the experience to see demos or travel to places they would not be able to. I think that these experiences are invaluable and could be life changing to a child who has never had the opportunity to experience this." The impact is even more evident when looking at the data. Compared to traditional video, recollection after using VR was 8.8% better. In one year of using VR training sessions, those retention levels shot up to as much as 80%, while other methods topped off at 20% after one week. The numerous possibilities that virtual spaces offer are becoming more apparent. Whether schools want to increase organic classroom collaborations, better implement remote learning, or just improve the overall educational experience, they can now turn to XR technology to ensure success. Beneficial to both teacher and pupil, it's leveling the playing field with the democratization of education for all.