

## **How can Virtual Reality (VR) technology help disabled young people** by Sienna

“Life is difficult. This is a great truth, one of the greatest truths.” This is the opening line of the book “The less travelled road” from Scott Peck. When I first read this back in my senior year in high school I felt a great relieve in my heart. Sometimes we forget that everyone out is having their own battle.

At that point of my life it was essential for me to embrace and remember to myself this fact. A few months apart from that day my high school friends would each find their professional and personal way in life. I, on the other hand, was on the brink of depression because I assumed my disability-related barriers are impossible to overcome.

When I was a little baby, my parents were told that I won't be able to walk on my own. I was born with a type of muscular dystrophy which meant I wouldn't be able to stand up and walk on own. In my life I've gone from one doctor to the other and I know a lot about this disease but this is not the point here, therefore I won't go in detail. I had a relatively happy childhood and for this I owe a lot to my dear parents. But as I grew older I felt different from the rest and that caused depression. At the end of the high school, I had a big mental downgrade to the point I was assigned for a six-month long anti-depression therapy.

In 2016 quite occasionally I came across this fancy Virtual Reality video [https://www.jungeroemer.net/cases/tectos\\_testbed.html](https://www.jungeroemer.net/cases/tectos_testbed.html) . I was impressed and moved. The technology was officially introduced a few years ago (in 2010 I think) but for me it was the first time to watch it. This first strong impression led me to a few weeks of persistent online research about this technology. My interest on it got intensified especially when I read about its potential application in helping disabled people like me. I knew that if I would help myself, it would do a world of good to my mental health, the quality of my life and then I could give a hand to other disabled people facing same struggles. Then I finally I decided to attend a sort of pre-university course in this field to gain a little professional expertise and be able to help afterwards.

My goal is to provide other disabled people with relevant information which would help them live to a high extent a barrier-free professional and personal life. I want to encourage them to learn about Virtual Reality technology and discover ways how it can help them.

### How Can Virtual Reality Help Disabled Students?

Equality is something education must stand for. In our schools it's done a great progress in this aspect. Anyway there's more to be done. Disabled students face still a lot of different problems apart from a customized infrastructure or similar. I know this from my very own experience in school.

So the question is: Can Virtual Reality Technology play a role in tackling this problem? YES, it CAN.

On a major scale and terms Virtual Reality can provide disabled students with:

Customization

Inclusion

Participation

These are three branches of the same tree so to say and they complement each other in this structure.

Customization

Disabled students may have specific needs due to their physical impairments. Let say a student has a partial eyesight loss and in a normal class setting a clear vision of the student is essential for him to understand the material. There are VR goggles and additional gears that enable these students to see clearly. This brings us then to the second point.

Participation

When the student knows what is being talked in the class from our last example and he/she can engage all his/her senses on the learning process therefore he/she can participate in discussions taking place. This is an essential element for everyone to excel in school.

Inclusion

It is of a great importance for a disabled student to feel part of the learning process. When his/her needs are met and he/she can participate equally then of course this is easily achieved.

In many classes, especially those held in laboratories, require certain body movements for an experiment to be performed. I had this problem as a high school student. I would never able to conduct an experiment on my own because sometimes I was supposed to be standing on my own feet or move in a certain way which I couldn't. So I was only learning about it from what I saw other students were doing. I knew what was going on but I didn't felt part of it. I didn't feel any sense of achievement what is a massive turn off for disabled students in career decisions.

VR Technology For Students With Sight Impairments

Globally the number of people suffering from any sort of sight impairment is growing at a worrying pace. According to the WHO stats there are more than 250 million people around the world with sight problems. Innovations in VR technology are being used in helping many of them, including them who follow their education dreams.

For example a London-based startup company developed a few years ago a VR headset that helps people with sight impairments restore their sight almost to normal levels. Essentially what their brilliant innovative device does is that it takes a real-time high quality image of the reality and then it projects its augmented form to the part of your retina that is still working. SightPlus is designed in

that way so you can adjust it to the level of sight improvement you need through a remote control system.

Even the big company Samsung has built a new VR headset for people with sight issues. Their product is called Relumino. This too, is based on the same principles to assist people with sight impairments by making blurry images clearer and by adjusting the contrast of colours accordingly

#### VR Technology for people using a wheelchair

Mobility is a main problem for wheelchair users. I personally used a wheelchair my whole life so I learned navigating around way earlier. But there are people who start using a wheelchair from a certain age because they had an accident or their initial neurovascular or orthopedic disease progressed in time. They find it extremely difficult to move around and I can understand that. Even worse, in most cases they have to deal with this problem all alone without any help coming through.

A way VR technology is already helping these people is by simulating a virtual situation where they have to cross a road or navigate in the building of a school. In such way, the person can learn to move as freely as possible and what's more important INDEPENDENTLY.

VR simulations help too people undergoing therapies to walk again. What doctors nowadays do is not asking their patients to push themselves make a few days in each session but they simulate a walking experience with a help of a VR headset. VR experts claim that this has a strong base in medicine, more specifically neuroscience. They say that a simulated walking experience can trigger patient's brain to adapt faster new motoric skills.

Further on, VR technology can help wheelchair users experience something they could experience otherwise. There are already lots of VR sets created to simulate a tennis game, go hiking, to tour around cities and museums and so on. And to all these activities wheelchair users can also have access to thanks to Virtual Reality technology.

#### Entertainment and VR

Disabled people deal with a lot of mental stress. It's important for them to entertain and feel no barrier in engaging in exciting activities. Here's where VR technology comes into play.

I, for example, loved always to hike but I couldn't because of my wheelchair. In a workshop in London I tried a VR set which simulated walking on stones at the top of mountain. It felt so real and I was happy I could experience hiking.

VR is also a perfect opportunity to have fun for people who aren't disabled. For example Google offers an outstanding immersive app called Google Expeditions. As you can guess it from the name it can take on a dreamlike expedition for example in Mars.

## VR Accessibility for Disabled Students

VR technology is nothing new, but it is still not the norm so to say. The main problem related to it is certainly its cost. Although they've been around for quite a while their price tag is high and for many just another luxurious item they cannot afford. For example, a Virtual reality headset may have a price of up to 1,400 euros which is surely high for the most of us.

There are actually lots of free-to-use vr apps and softwares but they're bounded to a narrow spectrum of disability-related needs. For example people who have a relatively low level of vision loss may use ChromeCast to project something on a TV display so they can read and see clearly from a certain distance instead of holding a device inches apart from the eye.

Anyway the day when VR will be accessible for almost all is not too far. Until then what can disabled people do?

First and foremost I encourage them to speak up for their specific needs. In school I didn't comfortable asking school officials to adjust something in the regular class setting only because I wanted to avoid attracting attention and feeling anxious afterwards. That was wrong and I don't want others to do this mistake.

Reach out for VR agencies: When I first got to know what potential has this technology to change my life I checked out for technology groups in my area that had VR gears on disposal and I reached for them. In this way I had the opportunity to experience VR from close and feeling for real how it could affect the quality of my life. Eventually I decided to seek a career path in this area, but I don't necessarily suggest others like me do the same. I want you to take advantage of this technology and use it for your benefit in every walk you take in this life.

## Future Prospects

Nobody knows for sure what this technology it's going to provide us with in the future. However there are strong reasons to be excited for it. Big role players in this industry seem to be firmly determined to widen the application of this technology, especially in medicine. In years to come we may see doctors who prescribe VR headsets and this just unbelievable to think about it. The idea of placing yourself in a future situation that feels profoundly immersive has a massive potential to reveal a lot about our reaction mechanisms which then can help us prepare better for them.