Learning with Virtual Reality

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Why are you listening to this lecture?

I believe that you:

• believe in **increasing access** to education
• are passionate about **integrating new technologies and pedagogies in teaching and learning**
• insist that **learning should be fun**
• genuinely **care about the future evolution of humanity**
How do we do it?

- Reaching the unreached through **technology enabled learning**
- **Catering to the last rung** of the intellectual ladder
- **With open arms** instead of closed doors
- Cater to **all senses and perceptions**
- **Boldly** go where no one has gone before
Why change?  

In the long history of humankind those who learned to collaborate and improvise most effectively have prevailed.

Charles Darwin

Image source: https://flic.kr/p/oc8cu7
What is Virtual Reality (VR)?

- The **definition of virtual reality** comes from the definitions for both ‘virtual’ and ‘reality’.
- Virtual is **near**.
- Reality is **what we experience as humans**.
- The term virtual reality means ‘**near-reality**’.

[https://www.vrs.org.uk](https://www.vrs.org.uk)
VR in Technical Terms

- A three-dimensional, computer generated environment which can be explored and interacted with by a person.
- That person becomes part of this virtual world or is immersed within this environment.
- The person is able to manipulate objects or perform a series of actions within this virtual environment.

https://www.vrs.org.uk
Why use VR in Learning?


• **Using the real thing is dangerous** or impossible, inconvenient, or difficult.

• **Give the disabled the opportunity** to do experiments, and activities that they cannot do otherwise.

• **Travel, cost, logistics** of gathering a class for training make an alternative attractive.

• **Teaching tasks involving manual dexterity or physical movement**.

• **Make learning more interesting and fun**.

Image source: [https://flic.kr/p/bPFx6R](https://flic.kr/p/bPFx6R)
What are 360-degree Videos?

- Also known as **immersive videos** or **spherical videos**.
- Video recordings where **a view in every direction is recorded at the same time**.
- These video are **shot using an omnidirectional camera or a collection of cameras**.
- During playback **on normal flat display the viewer has control of the viewing direction** like a panorama.
- It **can also be played** on displays or projectors **arranged in a cylinder or some part of a sphere**.

Image source: [https://flic.kr/p/aEBBsw](https://flic.kr/p/aEBBsw)
Why use 360-video in Learning?

- **Learners can look around during playback using a VR head-mounted display.**
- **Easily interacted with affordable headsets** such as Google Cardboard in the classroom.
- Act as **personal fieldtrips**. The teacher is **able to transport students** to a place or set of places that would otherwise be inaccessible to their class.
- Learners make **better connections with their learning** by providing concrete, visual explanations and examples.
- Allows the learner to **engage with their surroundings**.
- Through ‘**sense of presence**’, these interactions have the potential to develop **greater empathy and deeper understanding**.

Bringing VR into Learning

Image source: https://flic.kr/p/Cw4oQp
Web-based Virtual Reality

Can be viewed through a web browser on a computer screen or through affordable VR goggles such as Google Cardboard.

Image source: https://flic.kr/p/uoRaNK

Image source: https://aframe.io/docs/0.8.0/introduction/
Use the substantial 360-degree video libraries made available by Discovery channel, National Geographic etc. on YouTube.
Using A-Frame for VR Development

- A web framework for building virtual reality (VR) experiences.
- Originally from Mozilla, an easy but powerful way to develop VR content.
- Based on top of HTML, making it simple to get started.
- Supports most VR headsets such as Vive, Rift, Windows Mixed Reality, Daydream, GearVR and Cardboard.
- Aims to define fully immersive interactive VR experiences that go beyond basic 360° content, making full use of positional tracking and controllers.
Key takeaways

- **Move away from tradition.**
- **Think like a learner.** They live with constant sensory overload. Giving them a static textbook is like depriving them of oxygen.
- **Think immersive. Think non-leaner. Think 360-degrees.** If modern learning is ad-hoc, teaching should be too.
- **Don’t pay too much attention to the technicalities.** Just do it and figure it out as you go along.
- **Don’t be fooled by big EdTech companies who sell technology at a premium.** *Most of this stuff can be done yourself.*
Thank you