Virtual reality in education

Shailey Minocha and Ana-Despina Tudor
20 September 2017
3D virtual environments and virtual reality

- Second Life
- Virtual Skiddaw: 3D Geology Field Trips (Unity 3D)
- 360-degree videos in the browser
- Virtual reality viewers
As if I have met you

“...I get a feeling of meeting you face-to-face...even though I engage with avatars, I am aware that behind them there is a real person...”
Realistic and non-realistic spaces

I think students can’t deal with the whole space. Each learning scenario works if it is task oriented. Students obviously would need to know where to be and what is expected of them.

“"
3D virtual environments and virtual reality

- Second Life
- Virtual Skiddaw: 3D Geology Field Trips (Unity 3D)
- 360-degree videos in the browser
- Virtual reality viewers

Mobility
Reconstructing reality
Preparing for the real world
Lab in the field
On-the-spot analysis
Beyond reality
Seeing what is there beneath our feet
3D virtual environments and virtual reality

- Second Life
- Virtual Skiddaw: 3D Geology Field Trips (Unity 3D)
- 360-degree videos in the browser
- Virtual reality viewers

Mobility
360-degree videos in the Chrome browser

VR in brain surgery
https://www.youtube.com/watch?v=1H9qNaP0W9o

Ocean: A 360-degree tour of the mysterious, magical corals of Palau;
The Economist
https://www.youtube.com/watch?v=jvtvFHPRcsY
3D virtual environments and virtual reality

Second Life

Virtual Skiddaw: 3D Geology Field Trips (Unity 3D)

360-degree videos in the browser

Virtual reality viewers

Mobility
Empirical research

**Lessons in schools**
- students (n=549)
  - year 4 to year 11
  - science (n=11)
  - geography (n=9)

**Interviews**
- science teachers (n=11)
- geography teachers (n=9)
- curriculum experts (n=6)

**Workshops**
- field workers (n=19)
- educators (n=55)

**Class preparation**

**Inquiry-based learning activity sheet**

(Activity 3): Now that you have looked at the Tropical Rainforests in Virtual Reality, please write down questions you have about the characteristics of Tropical Rainforests.

- Why do certain plants find in rainforests?
- Could some trees evolve and adapt to have transparent leaves so other plants get more sunlight?
- How do some plants adapt so well and others don't?
Affordances

- 360-degree visual authenticity
- Emphasis and in-situ contextual information
- Single-user handling
- 360-degree navigation
- First-person perspective
- Synthesis

- 3D view
- Simulation
- Visualisation
Experiencing the invisible

Real places

“The virtual reality helped me because I could see for myself what was happening without having to imagine it.”
Learning through simulations

Simulations

“the animation was very realistic; therefore, I could take more knowledge away from the lesson [...] these images can [...] help me explain about the respiratory system in a much larger amount of detail.”
Local to global – and – global to local

It helped me to understand the Chilterns is an area of natural beauty compared to some places in the world. It helped me to feel more caring about the Chilterns.

“...”
A set of capabilities and achievements that support students in developing their careers, raising their aspirations and enhancing their contribution to society.

The Open University Student Employability Policy Statement
Virtual reality and employability

Virtual reality

awareness

workplace usage

learning and skills development
Virtual reality and employability

- Design and prototyping
- Risk-assessment training
- Continuing Professional Development
- Emergency and natural disaster management training
- Treatment of depression, loneliness, dementia

Virtual reality

Awareness

- Awareness of virtual reality technologies

Workplace usage

- Sensitising to environmental issues
- Interviewing; team-working skills
- Healthcare education; forensic science training
- Teaching

Learning and skills development
The future