Virtual reality in education

Conference or Workshop Item

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Virtual reality in education

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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…
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

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Mobility
Reconstructing reality
Preparing for the real world
Lab in the field
On-the-spot analysis

Grain Size

Click chart to get micron scale
Beyond reality
Seeing what is there beneath our feet
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=jvtvFHPHcsY
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Mobility
Google Expeditions – mobile virtual reality
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

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**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 are certain plants found in rainforests?
- Would 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."
“...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.

“...”
Employability

“...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

- Awareness
- Workplace usage
- Learning and skills development
Virtual reality and employability

- awareness of virtual reality technologies
- design and prototyping
- risk-assessment training
- Continuing Professional Development
- emergency and natural disaster management training
- treatment of depression, loneliness, dementia
- workplace usage
- learning and skills development
  - sensitising to environmental issues
  - Interviewing; team-working skills
  - healthcare education; forensic science training
  - teaching
The future