Virtual reality in education and for employability

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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

Mobility

‘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

Realistic space

Non-realistic space

"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."

Reconstructing reality
On-the-spot analysis

Beyond reality
Seeing what is there beneath our feet

360-degree videos in the Chrome browser

VR in brain surgery
https://www.youtube.com/watch?v=1H9gNaP0W1o

Ocean: A 360-degree tour of the mysterious, magical corals of Palau;
The Economist
https://www.youtube.com/watch?v=jvtvFHPRcsY
Google Expeditions kit

Tablet + Smartphone + Cardboard Viewer + Google Expeditions App + Router

Virtual field trips

- The Great Barrier Reef - bleaching event
- Borneo Rainforest – buttress roots
- Chernobyl
- International Space Station
Simulations, career expeditions

- Process of pollination
- Volcanic eruption
- Solar system
- Museum photographer

Google Expeditions – mobile virtual reality

- Inquiry
- Geography and science education
- Fieldwork education
- Learning through simulations
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.

Experiencing the invisible

The virtual reality helped me because I could see for myself what was happening without having to imagine it.
Formulating questions

Higher-order question:
“Can the colour of the coral before it’s been drained come back?”
(Year 8, Geography, Climate Change and The Great Barrier Reef Expeditions)

Educator’s comment:
“You’d need to explain why, the fact that it was variable on the coral. It links to the idea of resilience” (Geography teacher)

Higher-order question:
“How did the mangrove leaves adapt to take in the salt?”
(Year 10, Geography, Borneo: Plant Adaptations Expedition)

Educator’s comment:
“That’s really interesting because they’re asking why now. They know they do, now they want to know how” (Geography teacher)

Affordances of Google Expeditions

- 360-degree visual authenticity
- 360-degree navigation
- 3D view
- Emphasis and In-situ contextual information
- First-person perspective
- Near view
- Single-user handling
- Synthesis
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

[Diagram showing the relationship between awareness, workplace usage, learning and skills development, and virtual reality]
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
- Sensitising to environmental issues
- Interviewing; team-working skills
- Healthcare education; forensic science training
- Teaching
- Workplace usage
- Learning and skills development

Questions and comments

Examples of meeting locations