Virtual reality in education and for employability

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Introductions

Shailey Minocha

Ana-Despina Tudor
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…”

Shailey

Tania
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=jytvFHPRcsY
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

Virtual reality

- awareness
- workplace usage
- learning and skills development
Virtual reality and employability

Virtual reality

- design and prototyping
- risk-assessment training
- emergency and natural disaster management training
- treatment of depression, loneliness, dementia

Awareness

- Virtual reality education;
- healthcare education;
- forensic science training; teaching

Questions and comments