The role of Virtual Reality-based field trips in supporting physical field work

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1. Our research team and partners

- The Open University
- Field Studies Council - physical field trips, curriculum expertise
- Association for Science Education and Geographical Association – awareness-raising, recruitment, dissemination, curriculum expertise
- Google
  - New York
  - California
2. Google Expeditions
2. Google Expeditions

Tablet + Smartphone + Cardboard Viewer + App
3. Project’s research objectives

- whether and how virtual reality (VR)-based Google Expeditions (GEs) can complement physical field trips

- whether and how VR-based GEs can fit within the curriculum (classrooms)

- whether and how VR-based virtual field trips (VFTs) can support Continuing Professional Development (CPD) of teachers

- recommendations for the user interface design of GEs.
4. Our research stream on virtual reality-based field trips

- Geography and Science fieldwork skills: required and assessed in school (12-18 years old students)

- Physical field trips – time and location constraints

How can virtual reality field trips, such as Google Expeditions support fieldwork?
5. Methodology

Research question 1:
Can virtual reality-based field trips be used effectively to support teaching and acquisition of fieldwork skills?

Research question 2:
How can virtual reality-based virtual field trips support the pre-field trip, during field trip and post-field trip activities?
5. Methodology

Data collection period:
• June 2016-January 2017

Current sample:
• 14 Science and Geography teachers
• 5 curriculum leaders

Data collection instruments:
• Semi-structured expert interviews
• Google Expeditions virtual reality field trips application
6. Preliminary findings

Research question 1 – fieldwork skills

Geography:
• Observations
• Compare and contrast
• Spatial literacy

Science:
• Observations
• Sampling techniques
• Using quadrats and transects
6. Preliminary findings

Research question 2 – field work activities

<table>
<thead>
<tr>
<th>Pre-field trip</th>
<th>During a field trip</th>
<th>Post-field trip</th>
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<tbody>
<tr>
<td>• Familiarization</td>
<td>Compare and contrast:</td>
<td>• Revisions</td>
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<tr>
<td>• Activity preparation</td>
<td>• locations</td>
<td>• Data evaluation</td>
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<td>• Travel planning</td>
<td>• across geological times</td>
<td>• Generalization to other locations/habitats</td>
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<td>• Risk assessment</td>
<td>• across seasons and times of the day</td>
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7. Outlook

School and fieldwork centers visits:

• Class activities with virtual reality field trips: observations and interviews
• CPD sessions with virtual reality field trips: observations and interviews
What are the challenges that you would face in integrating virtual-reality field trips like Google Expeditions in your curriculum?
Project website

Project website along with blog, news items:

http://www.shaileyminocha.info/google-expeditions/

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