

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

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# Agenda

1. Our research team and partners
2. Google Expeditions
3. Project's research objectives
4. Our research stream on virtual reality-based field trips
5. Methodology
6. Preliminary findings
7. Outlook
8. Discussion

# I. 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

Pre-field trip	During a field trip	Post-field trip
<ul style="list-style-type: none"><li>• Familiarization</li><li>• Activity preparation</li><li>• Travel planning</li><li>• Risk assessment</li></ul>	<p>Compare and contrast:</p> <ul style="list-style-type: none"><li>• locations</li><li>• across geological times</li><li>• across seasons and times of the day</li></ul>	<ul style="list-style-type: none"><li>• Revisions</li><li>• Data evaluation</li><li>• Generalization to other locations/habitats</li></ul>

# 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



## 8. Discussion

**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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