Considering place as a means to link discrete exposures within roadside geology field trips

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Research objectives and methods

• Compare place attachment/student experience between two different field modules (same students, n=25)
• Pre-post questionnaires on each
• Non-participant observations
• Student interviews during (n=5)
• Instructor interviews after (different instructors, n=6)
Study population

• 6-week study abroad field camp in New Zealand
• From variety of US colleges
• Apply to and pay for the program
  • More intrinsically motivated, less extrinsically motivated, higher task value than average US college student (compared to Pintrich et al., 1991: MSLQ)
Study setting: field camp

Frontiers Abroad: Geology of New Zealand
Modules 1-3 (of total 5 modules, 6 weeks)

Module 1  
6 days  
Kaikoura  
Introduction to Geologic Mapping  
Geological map, stratigraphic log

Module 2  
6 days  
Cass  
Detailed Stratigraphic and Structural Mapping  
Geological map, stratigraphic log, cross-section

Module 3  
6 days  
Westport  
Metamorphic Core Complex and Related Features  
Individual exercises relating to field days

Pedagogy
Situated-Style Trip  
Roadside-Style Trip

Geological Content
Sedimentary: Clastic  
Sedimentary: Biochemical  
Igneous: Plutonic  
Metamorphic: Any
Study setting: field camp
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## Results: place attachment

<table>
<thead>
<tr>
<th>Trip type</th>
<th>n</th>
<th>Pre</th>
<th>Post</th>
<th>Shift</th>
</tr>
</thead>
<tbody>
<tr>
<td>Situated</td>
<td>23</td>
<td>32.39 (6.59)</td>
<td>39.70 (7.00)</td>
<td>7.30 (5.26)*</td>
</tr>
<tr>
<td>Roadside</td>
<td>25</td>
<td>30.32 (6.80)</td>
<td>31.80 (6.76)</td>
<td>1.48 (6.61)</td>
</tr>
</tbody>
</table>

*p<0.0001
Results: situated module

1. **Students**: ownership of mapping area, made decisions, explored autonomously

2. **Peers**: forged interpersonal connections (groups of 3-4)

3. **Instructors**: limited interactions, opportunistic

4. **Landscape**: immersed in landscape, even when at field station

• Intended learning outcomes built towards large assessment and independent interpretations
Results: roadside module

1. **Students**: unique geology but spatially disoriented (sometimes 2 hours/day driving), unsure of goals
2. **Peers**: largely independent (groups either 13 or 26)
3. **Instructors**: hands-on, decision makers
4. **Landscape**: moved in and out, detached when at field station

• Intended learning outcomes of teaching regional geologic history and developing interpretation skills (through smaller assessments)
Implications: field trip design
Summary

• Situated trips readily foster place attachment and engagement
  • Particularly when students given considerable autonomy
• Roadside trips struggle to build a connection with the place and this may be disengaging
  • Keep students spatially aware
  • Have a unifying goal or theme, such as place
    • Make students aware of this and how each site relates to it
  • Assessment may help strengthen this
Acknowledgements

• University of Canterbury Doctoral Scholarship
• Mason Trust Award
• Field assistants Angus Knox and Landis Powell
• Department of Geological Sciences and Frontiers Abroad support
• Student and instructor research participants