Historical Context and Evaluation of Engagement in Technology Based Approaches to Accessible Geoscience Field Learning

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Remote Access to Field Work: Early Days

Wireless Coyote\(^1\):

- Early example of connecting students in the field in real time to students in a different location using technology.

- "We must take into account all dimensions of the situation – physical, social, task and technology – to redesign experiences with the properties of new technologies in mind"

Remote Access to Field Work: Recent

Enabling Remote Activity (ERA)²:
• Utilized a portable wireless relay to send photos, videos and text from the field to participants just outside the field area.
  • A big step forward for inclusion in collegiate geoscience field learning, with a specific focus on improving access for students with disabilities.

Out There, In Here (OTIH)³:
• Indoor base team with access to print and digital resources, and a field team to collect observations and data at outcrops.
  • Gave a more active role to remote participants, bigger focus on collaboration between field and remote teams.

2. Gaved et al., 2008; Collins et al., 2010; Gaved et al., 2010; Stokes et al., 2012
3. Adams et al., 2010; Coughlan et al., 2010; Adams et al., 2011; Coughlan et al., 2011
Engagement in Virtual Environments

**Academic Engagement**: This requires:
- The ability to carry out tasks and interact with their virtual surroundings.
- Active involvement – passive observation not enough.

**Social Engagement**: Important because:
- Strong driver of student retention and sense of belonging in their degree field.
- Contributes to a more positive and productive learning experience.

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Current Project: The GEOPATHS Project for Inclusive Field Learning 2016-2017

Two year investigation of approaches to collaborative field learning through technology for improved access and inclusion.

My Research Interest: How well does remote collaboration through technology promote academic and social engagement in the field?
What is Remote Collaboration?

Communication technology is used to connect team members in different locations to undertake field learning together in real time.
Methods

• Video Analysis
  • STROBE engagement analysis of continuous GoPro footage
    (adapted from O’Malley et al., 2003)

• Survey
  • Social Presence Survey (adapted from Krejins et al., 2007)

• Focus group interviews
  • Qualitative data related to engagement.
Results: Video Analysis
Comparisons of students undertaking field work directly and through remote communication.

- **Direct Participants (n=5)**
  - Academic: 51%
  - Social: 11%
  - Disengaged: 25%
  - Technical: 13%

- **Remote Participants (n=4)**
  - Academic: 47%
  - Social: 16%
  - Disengaged: 17%
  - Technical: 20%
Results: Survey, Question 1

Was there something about this approach that made you feel isolated or less a part of the team?

Open Response Themes:

- Technical issues that cut off communication
- Interpersonal dynamics
- Partners splitting up
Results: Survey, Question 2

Was there something that made this approach especially valuable in terms of team-building or social inclusion?

Open Response Themes:

- Sharing the process of exploration
- Collaboration during data collection/site interpretation
- Understanding team member abilities and adapting accordingly
Results: Qualitative analysis of interviews

Negative influences on engagement:
- Lack of communication between team members and between faculty and students
- Feeling academically underprepared/inferior

Positive influences on engagement:
- Feeling comfortable to be yourself without judgement
- Seeing accomplishments from group efforts in the field.
- Challenge & success – both physical and academic
Final Remarks

Engagement through remote collaboration is possible when learning experiences are designed with inclusion in mind.
Thanks for listening!

Questions?

Please visit the IAGD booth in the Exhibition Hall for more info on accessible geoscience projects!