

High Impact Learning Experiences during a Sustainable Building Course in Costa Rica

Presenters:

Rodolfo Valdes-Vasquez, Ph.D.

Construction Management Department

Hannah Love, Ph.D. Candidate

Department of Sociology



Agenda

- Background
- Content Overview
- Travel Details and Itinerary
- High Impact Learning Experiences
- Social Network Analysis
- Results
- Key Findings and Q/A



Goals of the Study

- Investigate **High Impact learning activities** of a 12-day study abroad course and the impacts of these practices on learning
- High impact learning activities:**
 - cultural learning
 - community-initiated projects
 - project-based and applied learning
 - reflections
- By using **network diagrams** and **student reflections**



Background

- Offerings – CON 450**
 - Winter Break (2014-2017)
- Participants** (62 students total)
 - Main partners: OIP, CM, and EARTH
- Other collaborators:** Local professionals
- Target Audience:** Undergraduate students



Course Objectives

- **Define** concepts of sustainability and climate adaptive design, development, and construction
- **Build** a cross-disciplinary, cross-cultural, learning environment through student diversity, teamwork, and interdisciplinary project work
- **Experience** a sustainably oriented service experience
- **Apply** concepts related human centered design and sustainability in a tropical climate



Course Overview

Day	Topic
1	Introduction and Welcome to Costa Rica
2	Personal Sustainability, Field Trip and Project Delivery
3	Case studies and field trips to LEED projects
4	EARTH campus tour, need for sustainability, Eco-footprint and sustainable guiding principles
5	Community development, natural construction and project planning
6	Community Project and Host family stay
7	Community Project and Host family stay
8	Discussion of building flows and Sustainable Strategies
9	Field trip to Organic Permaculture Farm and Zip-line experience
10	Sustainable Rating Systems and Final Project
11	Final Project submission, individual visioning activity, and Art/Photo Contest
12	Course Wrap-up and Farewell

1. Body of Knowledge

2. Service Learning and Sharing Practices

3. Student Collaboration and Visioning

Travel details and sample Itinerary



- San Jose (2 nights)
- Earth University (2 nights)
- Host Family and Service learning project (2 nights)
- Earth University (1 night)
- Cahuita (1 night)
- Earth University (2 nights)
- San Jose

Course DNA





Cultural Learning



When a learner attempts to see a situation the way another person sees it

Study abroad courses have great potential to enhance cultural learning because the course is structured around engaging students in projects and relationships with culturally diverse others.



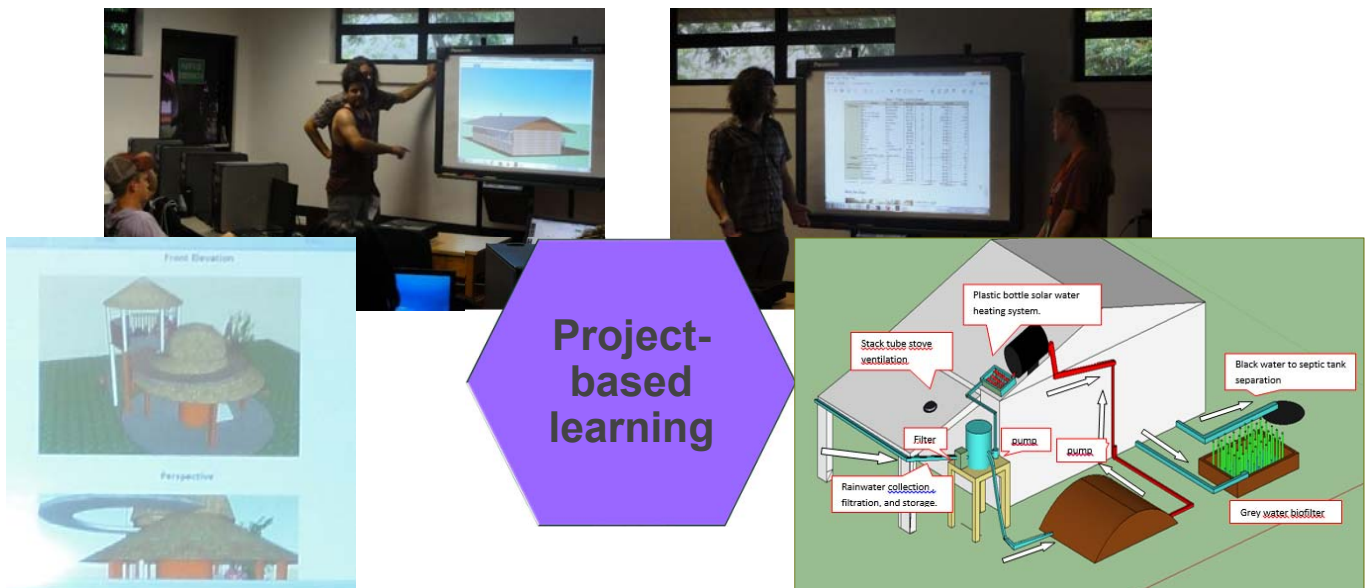
Applied learning (e.g., field trips and case studies presented by students)



An understanding and a disposition that a student builds across the curriculum and co-curriculum, from making simple connections among ideas and experiences to synthesizing and transferring learning to new, complex situations within and beyond the campus



When new ideas from a course are investigated or put into practice through service-learning or community-initiated projects, students and teachers are acting in partnership with the community and applying learning to specific contexts.



Students are assigned to groups, which are mindfully formed to represent a variety of cultures, genders, and educational backgrounds. Teams are expected to apply integrated design practices and work together collaboratively. The goal of the project is to apply lessons-learned in the course to a real-world situation, which was based on the need assessment that students completed when staying with their host families and the community.

Reflections

Example 1

Tonight, we asked [a local] about how she thinks the community can be improved. She said she would like to see a larger and better park for children to play sports: volleyball, basketball, tennis. The community currently has a small soccer field, but she thinks it is too small and it is not maintained well. Therefore, the children do not like to use it. (Student #4, 2015).

- Individual and group reflections have been reported to be a powerful learning activities.
- Learning is codified through student reflection
- We coded student reflections to uncover what students reported as learning.

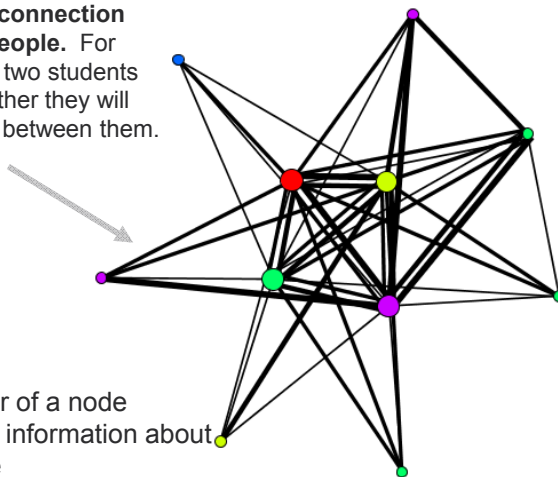
Example 2

The entire day was a completely eye-opening experience, and a reality check about how materials are abused in the United States. I noticed that when we are finished with a product we typically think "how can I get rid of/dispose of this?" Here in Costa Rica they have a different mindset. They think, "How can I use this, what can I do with it. How can I repurpose it?" (Student #5 2016).

Social Network Analysis (SNA)

Line

Indicate a connection between people. For example: If two students text each other they will have a line between them.



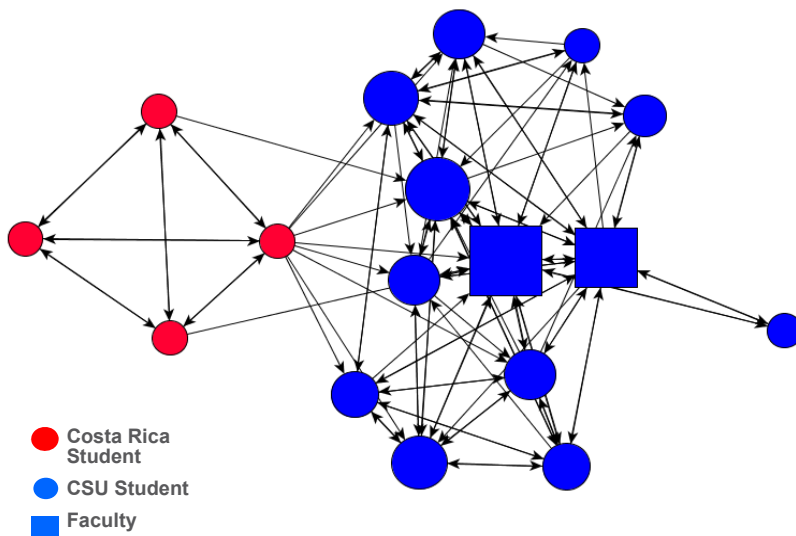
Node

The color of a node provides information about the node

Short Explanation

- A social network survey was created to determine how the knowledge networks changed from the beginning of the study abroad program to the end of the study abroad program. For this program, participants typically meet for the first time in October and the program officially ends in the middle of January.
- The results of the SNA focused only on the 2017 group participants. The pre-trip survey was completed in November 2016 and the post-trip survey in January 2017.

Results

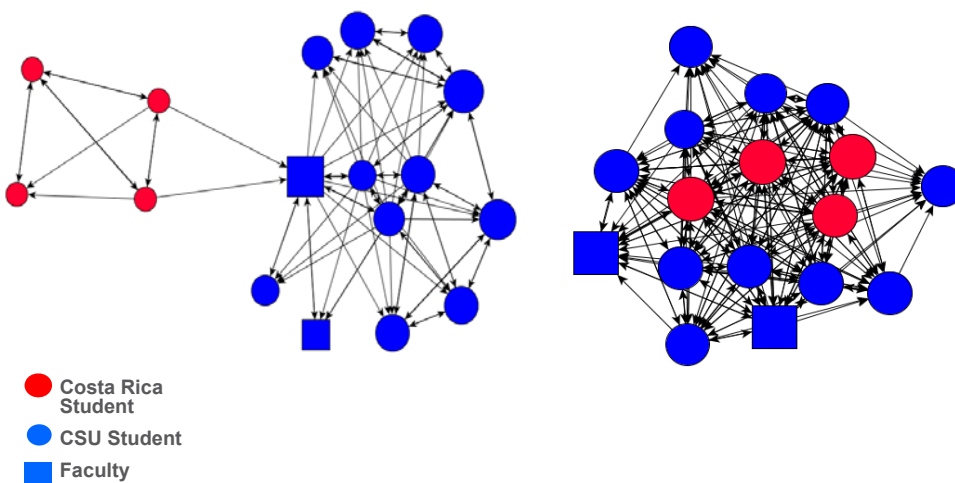


Do you recognize this person outside of class?
Results from pre-trip 2017

Meaning of the diagram:

- The SNA survey asked students and faculty who they recognized in the class before the first day of the program.
- Most of the CSU students recognized each other, and similarly most of the students in Costa Rica recognized each other.
- However, due to the distance between their campuses, these two cohorts had not interacted until meeting in Costa Rica.

Results

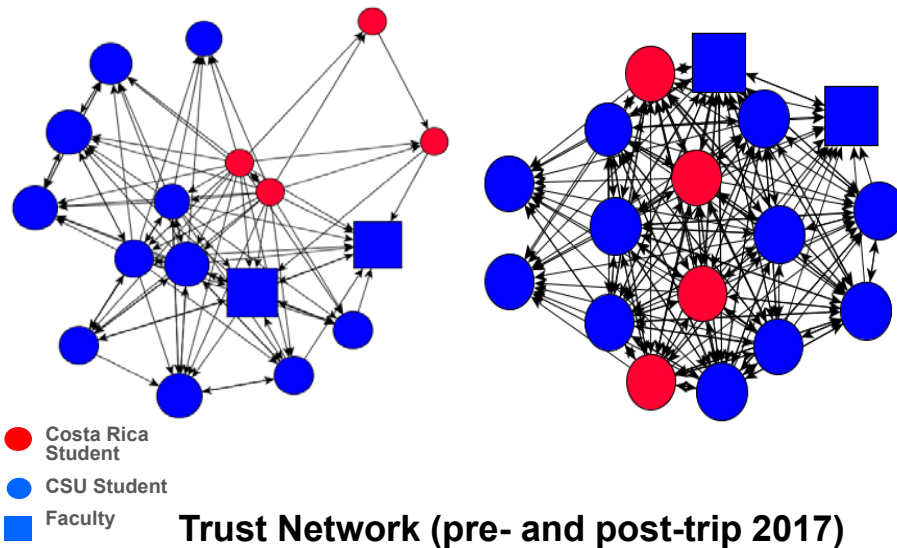


Communication Network (pre- and post-trip 2017)

Meaning of the diagrams:

- In the pre-test diagram (left) the students from Costa Rica did not connect with CSU students via email, social media, or phone before the trip.
- In the posttest diagram (right) the students from CSU and Costa Rica were well-connected in the network.
- The trust network consisted of the following six questions: who could you ask for a ride, ask for lunch money, borrow \$50, go to for school advice, go to for relationship advice, and go to for help in a crisis.

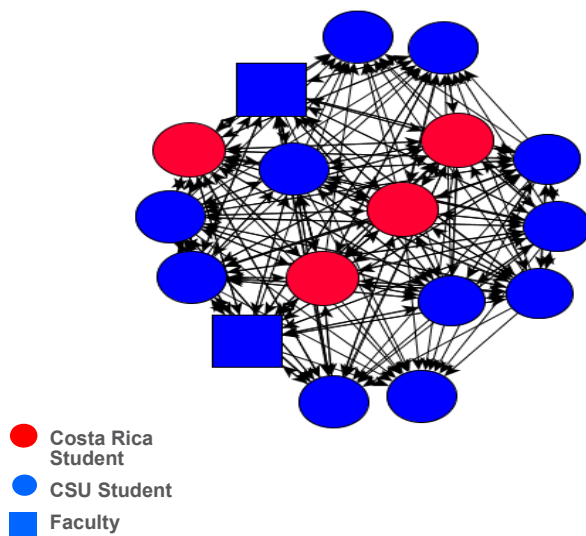
Results



Meaning of the diagrams:

- The pre-test diagram (left) and posttest diagram (right) demonstrate how trust grew and developed over the course.
- The trust network consisted of the following six questions: who could you ask for a ride, ask for lunch money, borrow \$50, go to for school advice, go to for relationship advice, and go to for help in a crisis.

Results



Meaning of the diagram:

- The SNA survey includes a question about who they (students and faculty) learned from.
- Strong connections developed between CSU students, Costa Rica students, and faculty.
- In the network, the faculty were being pushed to the outside of the network. This is a sign that students were engaged in **peer-to-peer learning**.

Who did you learn from? (Results from post-trip 2017.)

Results

This week has been a whirlwind. My brain is exploding with new information.

*I loved our **final project** because the focus of our group was to come up with something truly feasible and not only do I think we could make it happen. It would truly **improve the community**. We also really tried to incorporate all of the sustainable building/ uses that we learned this week to incorporate them into our building.*

*This trip was very eye opening and I really hope that can continue to **improve my life** to be more sustainable not only at work, but in my personal life as well.*

*I am so grateful and happy to have this experience in Costa Rica! :)
(Student #2, 2016).*

Short Explanation:

- Take a minute to read the quote to the left
- What's something you notice?
- We found that in the student's reflections, they discussed learning from "others" that included faculty, but also peers, the host families, and the community.
- In addition, many of the quotes mentioned the exchange of information between host family and student, community and student, and student to student. These exchanges provide further evidence of peer-to-peer learning, which the literature reports as being a powerful form of learning

Key Findings



- The high impact learning activities are **heavily intertwined**.
- The community-initiated projects **integrated** three other established high impact learning experiences:
 - applied learning, project-based learning, and cultural learning.
- Reflections serve three essential functions
 - **reinforcing** the learning from each assignment
 - **articulating** the interconnections of other high impact learning experiences
 - **exploring** the relevance of their course experiences and learning for their life and future career.
- Student comments emphasized the central role of **learning from others**, which was mirrored in the social network analysis.





Future Research

- **Compare and contrast** the social networks before and after the programs in 2017 and 2019.
- **Analyze** the impact of the learning activities by having an ethnographer who will immerse herself in the next offering.
- **Conduct** more depth analysis of student reflections.

Acknowledgements

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- Guest presenters (faculty, students, staff, and practitioners)
- CM, ID, and Sociology Departments



"Although everyone came from a diverse culture and educational backgrounds, it was clear that we all came to make a positive impact on the world through a better understanding of sustainable and green buildings."

THANK YOU!

WE ARE...
RAM BUILT

