

## Service Learning in Non-Majors Biology: Learning Outcomes and Lessons from the Field

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## Service Learning

- Beneficial to **students and community partners** (addresses a real community need).
- Students **reflect** upon experiential learning and relationship to course content.
- **Challenges student** cognitively and/or developmentally.
- Can be especially transformational for **non-majors** in STEM.

## Question

**What factors contribute to a successful service learning project from a student perspective?**

- Topic?
- Student ownership?
- Working with community partners?
- Perceived impact in the community?
- Helping understand course content?
- Amount of instructor-provided structure?

## Methodology

- Non-majors biology: BIO101 and BIO141
- 6 SL projects over 4 years – range of types
- One survey for all projects, 2 surveys for 4 projects



### BIO101/141 Intro project: Invasive Plants Service Learning (Time: 2 hr)



Students researched and pulled invasive plants

### Design project to assist Friends of RCST

- Open-ended, living-learning community
- Freshman students struggled with lack of structure

### Design project to assist CSA



Upper-level students thrive with independence in using their specialty skills to solve unique problems.

### Invasive plants propaganda



- Students choose dissemination method & message
- Minimal community partner and no hands-on service – except Honors section...

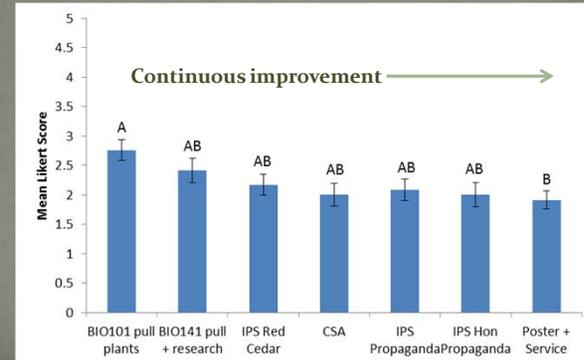
## Reflective research poster on service topic and activity



- Students choose guided research topic for presentation
- Complete hands-on community service activity

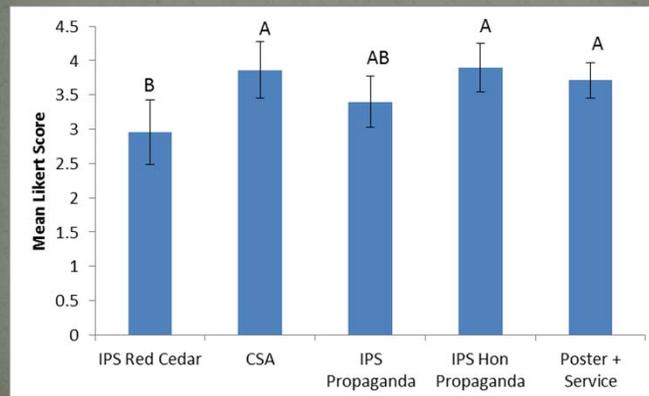
## Projects with less active roles did not empower students (ANOVA, P = 0.005)

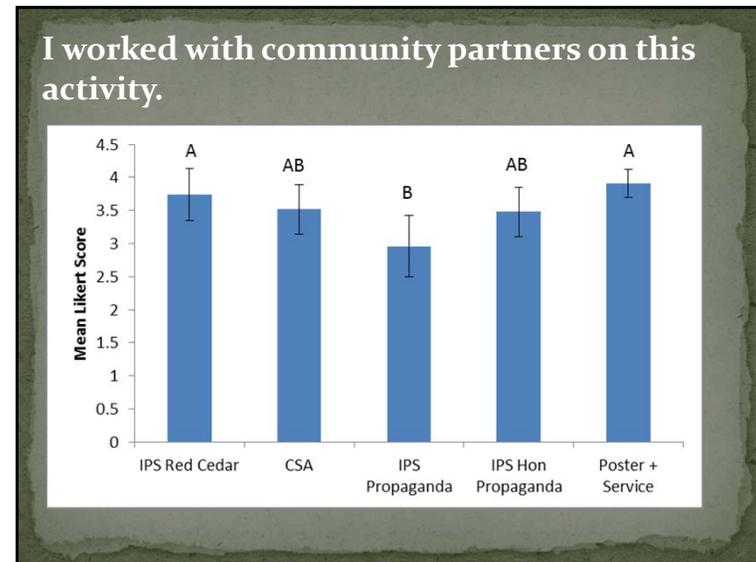
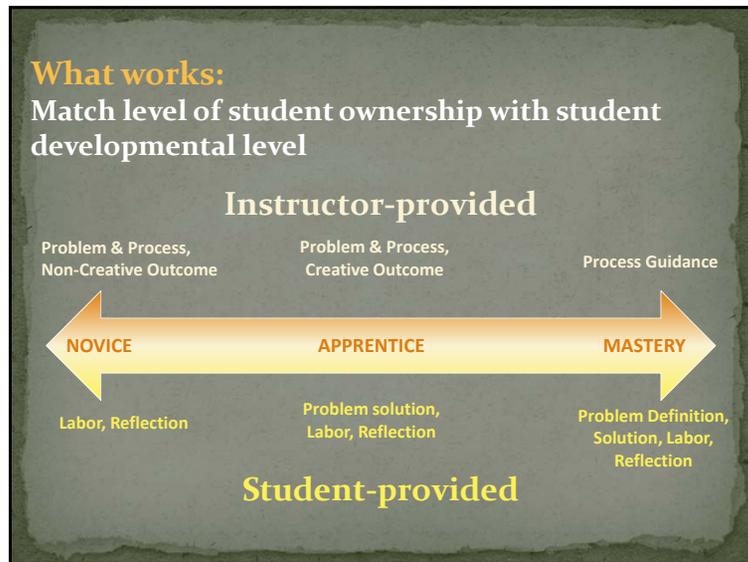
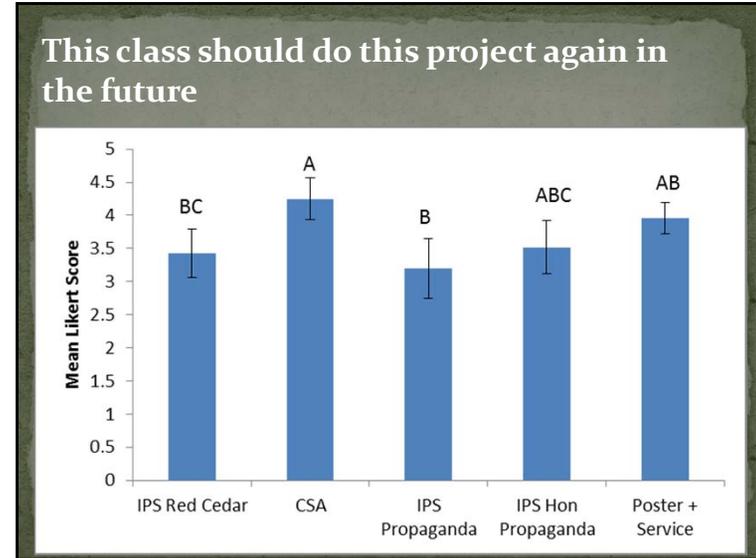
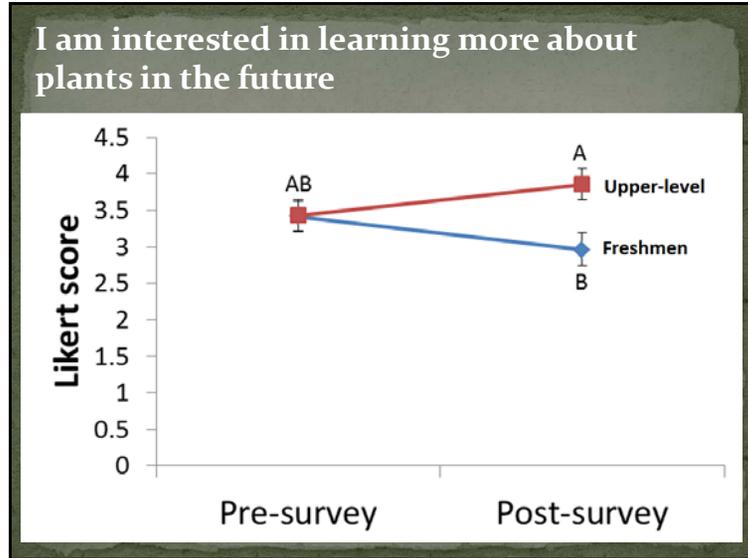
Response to : I believe it is someone else's job to fix the societal and environmental problems we are facing



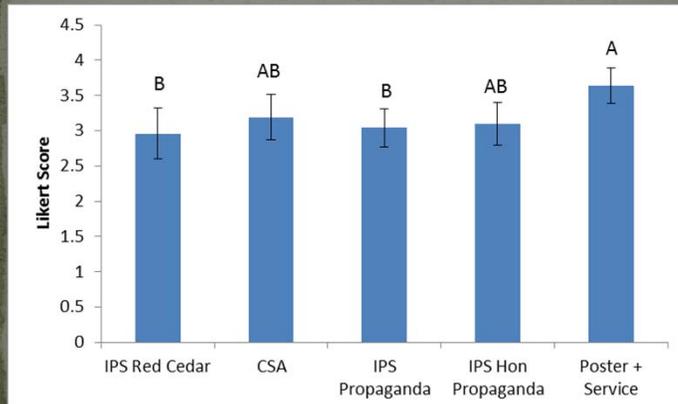
Project	IPS Red Cedar	CSA	IPS Propaganda	IPS Propaganda-Honors	Poster session	P-value
<b>This activity made me more aware of community needs</b>	3.64	3.76	3.48	3.70	3.91	0.378
I think this project made a difference in my community.	2.96B	3.19AB	3.04B	3.10AB	3.64A	0.003
I worked with community partners on this activity.	3.74A	3.52AB	2.96B	3.48AB	3.91A	0.002
This class should do this project again in the future.	3.43BC	4.25A	3.20C	3.52ABC	3.96AB	<0.001
I had a voice in shaping this activity.	3.43AB	3.90AB	3.52AB	4.19A	3.22B	0.002
I don't understand the point of doing the service activity.	1.96	1.81	2.40	2.25	1.89	0.038
<b>This activity helped me better understand what we were doing in class.</b>	3.18	3.76	3.38	3.60	3.61	0.293
I am interested in learning more about plants in the future.	2.96B	3.86A	3.40AB	3.90A	3.71A	0.005

## I am interested in learning more about plants in the future





I think this project made a difference in my community

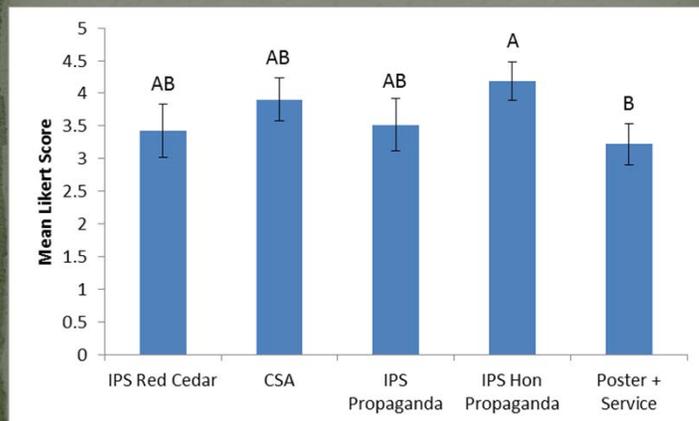


**What works:** Locate an engaged community partner with a need that overlaps your course content.

Partner must accept student-level work and students must be capable of meeting needs

Partner as co-mentor...

I had a voice in shaping this activity



**Quick and Dirty Analysis**

Model predicting “This class should do this project again in the future” score ( $R^2 = 0.331$ ):

- Made a difference in community ( $P < 0.001$ , + 0.37)
- Helped me understand class content ( $P < 0.001$ , + 0.31)
- I don’t understand the point... ( $P = 0.021$ , - 0.21)

I had a voice in shaping activity (almost sig., +)  
 I worked with community partners (almost sig., +)

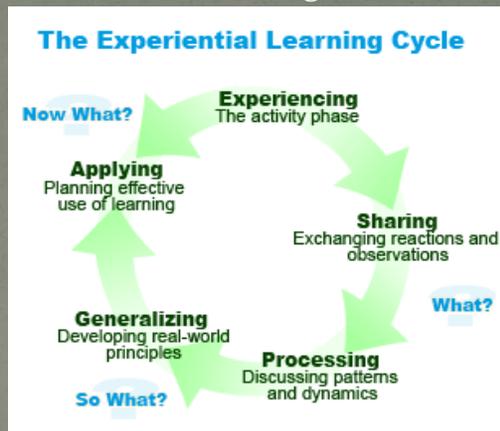
### Take Away Messages for Planning Projects:

1. **Scale/Scaffold/Structure** appropriately
2. Help students see the difference they are making (or choose topic wisely) - **THE POINT!**
3. Connect to class content

### Project: Head Start Children's Nature Garden

Students enjoyed project and felt like they helped...

### What works: Reflect with guided reflection



Kolb, David. Experiential Learning Cycle chart

Avoid burnout by establishing long-term, repeatable projects and **relationships**

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Wisconsin Land Trust, WI DNR, Dunn County LCD,  
Menomonie Community Gardens etc...

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