Slide 1

Putting the You in UR: The influences of faculty participating in undergraduate research

POD 2014 LEVERAGE

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FSSE faculty survey of student engagement

UROC Undergraduate Research Opportunities Center California State University, Monterey Bay

Slide 2

Agenda

- **Benefit or value of UR for faculty and for students**
- **Research overview**
- **Research results and facilitation of a discussion about teaching practices in UR experiences**
- **Barriers**
- **Case-study results**
- **Campus plans**

Slide 3

Benefits of Undergraduate Research

Students

- What are the benefits to students?
- What do we hope students will get out of their UR experience?
- Who should participate in UR?
- What are the costs?

Mentors

- What are the benefits to mentors?
- Who are mentors and who should mentor?
- What are the costs?

Slide 4

- What are the benefits of UR, and what do we hope students will get out of their UR experience?
  - PollEv.com/heatherhaege770 or Text 967268 and your message to 37607
- What are the benefits to mentors?
  - PollEv.com/heatherhaege770 or Text 968438 and your message to 37607
- What are the costs to students?
  - PollEv.com/heatherhaege770 or Text 968439 and your message to 37607
- What are the costs to mentors?
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Slide 6

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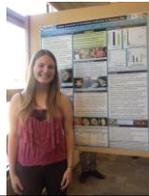
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Benefits to Students

- **Increased educational aspirations and attainment**
  - Compensatory effect
- **Building connections with faculty**
- **Deep learning**
- **Transferable skills**
- **Retention in STEM**
- **Graduate education**

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Benefits to Mentors

- **Giving back**
- **Job satisfaction**
- **Expand skills and knowledge**
- **Transfer of "academic DNA"**
- **Productive interactions with students**

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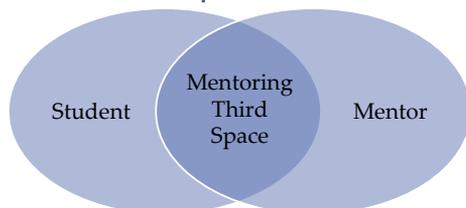Still not working? Get help at pollev.com/app/help
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Mentoring Third Space

Location where mentor and mentee become partners

Student — Mentoring Third Space — Mentor

Research

- **Data**
  - Faculty Survey of Students Engagement
    - (FSSE), 2014
- **Move beyond looking at students and will instead focus on faculty involvement in undergraduate research**
  - Faculty values and behaviors
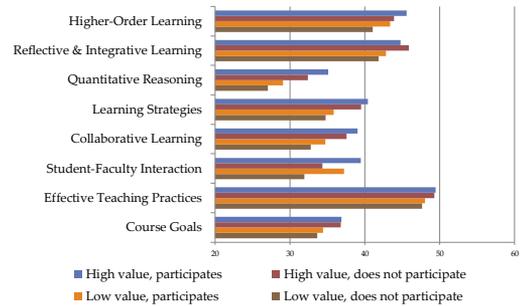 - Institutional factors impacting faculty participation

Mentoring students in UR

- **Teaching practices of faculty in four different categories**

Faculty who…	Do not work with students in research	Do work with students in research
Have low UR value	1	2
Have high UR value	3	4

- **Institutional factors affecting mentoring**
  - Proportion of adjunct faculty on campus
  - Diversity of the faculty population
  - Type of institution

Findings

Categories (top to bottom): Higher-Order Learning, Reflective & Integrative Learning, Quantitative Reasoning, Learning Strategies, Collaborative Learning, Student-Faculty Interaction, Effective Teaching Practices, Course Goals

Legend:
- High value, participates
- High value, does not participate
- Low value, participates
- Low value, does not participate

Findings

- **Faculty who highly value UR and mentor students in UR are also higher in effective teaching practices**

- **High value and no participation also high in other effective teaching practices**

- **Low value but participation in UR still has higher student-faculty interaction**

- **Low value and no participation in UR mentoring are the lowest in other effective teaching practices**

Findings

Faculty participate in UR more frequently at institutions where:
- **More faculty in STEM fields**
- **Faculty have lower course loads**
- **Faculty are more racially diverse**
- **Lower proportions of adjunct faculty**

Non-predictive factors: institution size, gender proportions, Carnegie type, and institutional control

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Effective Teaching Practices in UR

- **Mentor training**
  - How to engage faculty and graduate students
  - Mentors outside the tenure track
  - Topics to cover
- **Setting goals, roles and expectation**
  - RPG- Research Planning Guide
  - Mentor charter
- **Accountability and feedback**
  - Mentee Evaluation
  - RPG

Characteristics of Successful Mentoring Relationships

- **Reciprocity**
- **Mutual respect**
- **Clear expectations**
  - "This is especially important on the mentee's side of things. Mentees need to learn to take charge and actively manage the relationship – for example, to be in the habit of sending an email before a meeting with an agenda and some questions they want answered. Managing their relationship with their mentor is good practice for managing their own career."
- **Personal connection**
  - "This is what is known as chemistry, and contrary to popular belief, chemistry can be created by being actively present in the relationship, and listening and reflecting back what you've heard."
- **Shared values**

Scaffolding

Modeling	Scaffolding	Fading
Expert carries out the task, verbalizing the process. Student observes and builds a conceptual model of the process.	Student carries out the task with prompts and support from the expert.	Supports are gradually removed, resulting in independent execution of the task.

Adapted from Pearson & Brew

Push (just enough)

- Allow for a certain level of discomfort / challenge, but be aware of 'the freeze.'
- Scaffold new information and tasks, progressively leading to more independence and ownership.
- Create a culture that encourages and models critical feed back.

Challenges to Positive Mentor-student Relationships

- Role-models in research for traditionally underrepresented students
  o Differences in communication styles
  o Mentors with very different backgrounds to students

- Differences in expectations
  o Roles
  o Leadership/independence
  o Communication Style

- Authorship
  o Intellectual property

Challenges to Positive Mentor-Student Relationships

Cultural Divide
- Academic language
- Norms of communication
- Cultural norms and expectations
- Social structure and hierarchy

Knowledge Divide
- Understanding of the research process
- Gaps in training
- Gaps in fundamental knowledge

Miscommunication, Feelings of isolation, Underperformance, & Lack of Scholarly Identity

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Case Study CSUMB

- Mentors who…
  - Provided technical/research support
  - Provided personal/emotional support
  - Provided culturally relevant mentoring
  had the greatest impact on student development during their research experience, increases in educational aspirations, and overall satisfaction with the research experience

- Culturally relevant mentoring
  o How do you provide culturally relevant mentoring to students who are culturally different from you?
  o Where is the balance between honoring a student's culture and socializing them into the profession?

http://uroc.csumb.edu/select-mentoring-resources
https://drive.google.com/folderview?id=0B62gEnquxX2WZElOdk
d0R1NtOUk&usp=sharing

Campus Plan

- What barriers does your campus face in engaging students and mentors in research?

- What could be done to reduce these barriers or better support students and mentors?

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