

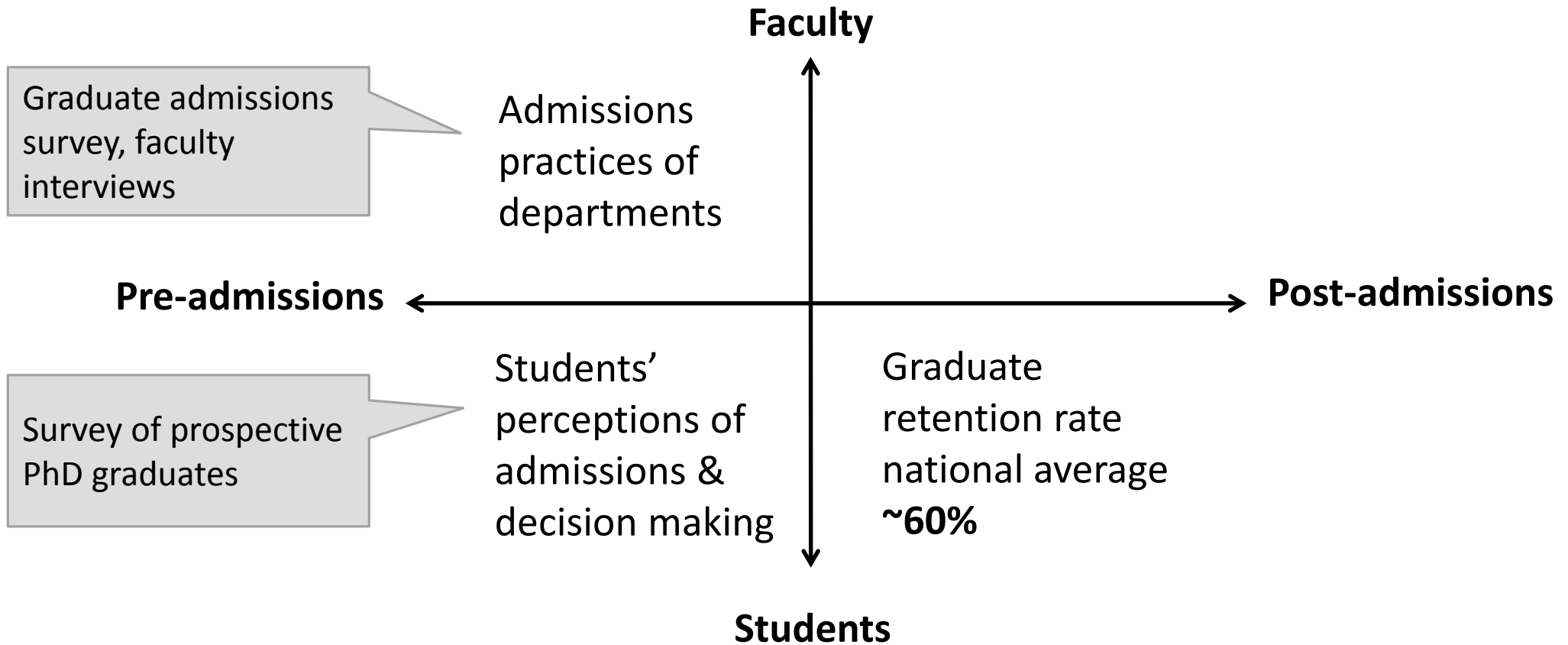
Graduate students' enculturation in physics departments

Deepa Chari & Geoff Potvin

PERC 2017



Motivations



Motivations

❑ The organizational culture, structure & process of Ph.D. can make some students leave.

Building ties

Enculturation

❑ High attrition rates in the first two years.

Grad school

❑ APS Bridge Program (BP): Retention rate 88% (91 out of 103)

Retention of UR groups in physics

Contributes to national statistics

Lovitts B., *Leaving the Ivory Tower* (2001)

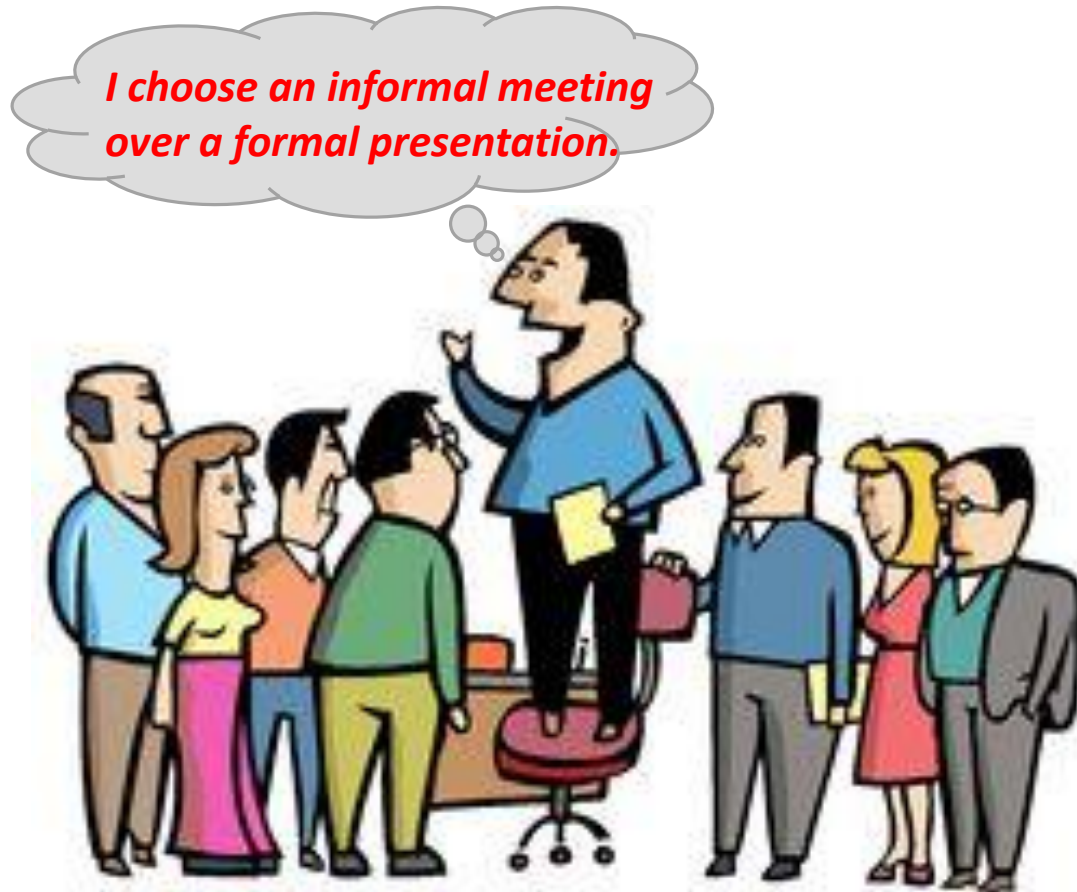
Broad question

What programmatic and social factors provides facilitation during Bridge students' enculturation to their graduate department?

What we mean by enculturation!!



What we mean by enculturation!!



Participation

Enculturation is also “cultural formation”

Co-creation

Lave and Wenger, Communities of Practice (1991)

VanManen M., Researching lived experiences (1997)

Specific interest

Course-takers

“We **hardly ever meet senior grad students**, typically because once you finish course work, it’s all about research. So, they are off wherever their research carries them.”**Olivia**

community

“Some **BP students taking undergraduate classes** live with graduate students but can’t collaborate with them. The **undergrads have** completely **different offices**, and many a times **they are even not in there!**”**Peter**

What programmatic and social factors provides facilitation during Bridge students’ enculturation to the course-takers community?

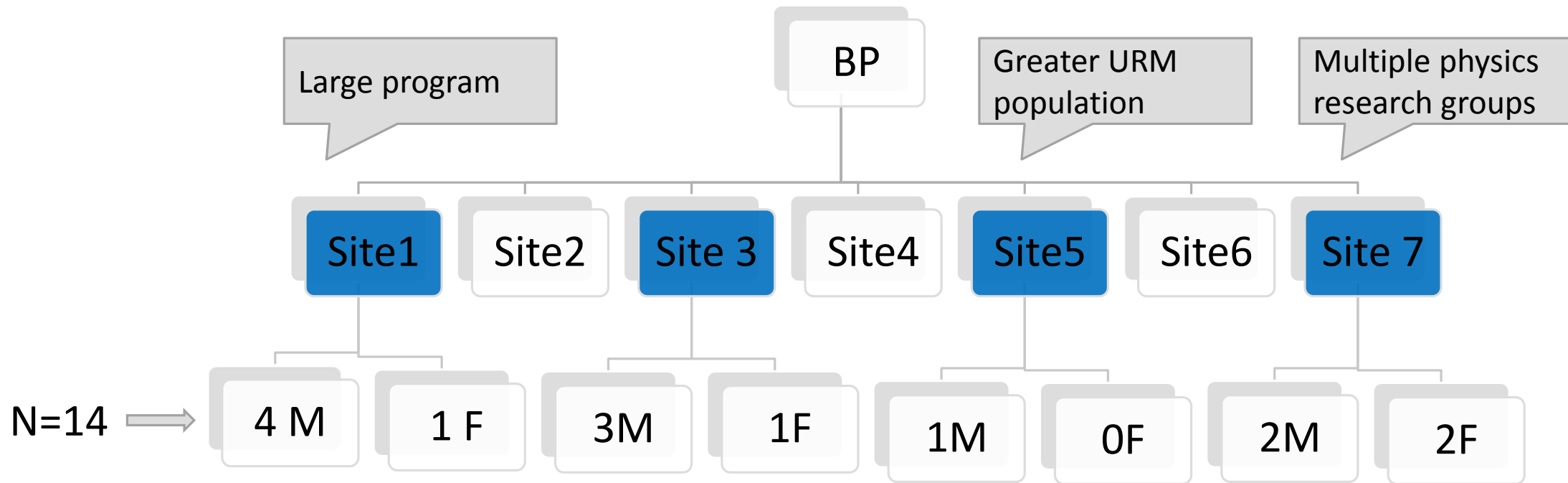
Course-taker community as CoP

- ❑ Shared domain: formation of group to collaborate
- ❑ Shared goal: understand norms and facilitate each-other in course-taking community
- ❑ Shared knowledge: interaction with other communities

Data collection

- ❑ 14 semi-structured interviews
- ❑ 1 Pilot interview at FIU
- ❑ 5 in person and 9 Skype interviews

Data collection: participants



Negotiating membership in the course-taker community

Devised strategies for participation

Understanding collaboration norm

Discussions with central participants

Mentoring peripheral participants

“We have a floor where everybody taking core courses sit...there are few **students who have changed their** (office) floor and **moved with us** ...they were taking core courses last semester and **did not do so well**. Those were kind of **isolated earlier**” ...**Sophia**

“I was **nebulous about falling behind** if I take **all 3** undergraduate courses. A senior BP student told me “I wish, I would have taken all the undergraduate courses.” **Others said it was pretty helpful** and now they are doing good at the graduate courses.” ...**Jacob**

“I **start working on homework early** so that I can think of my issues in advance....and when we discuss it in groups, I **can give a better version** of it with solution sometimes (laugh)”. ...**Noah**

Extending interactions with other communities

Participating beyond course-taking

Paving pathway for future course-taking

Agencies

“My math background wasn’t that strong. My undergraduate math department was not that strong, that may be a reason....A large percentage of students did feel (same way). They would also **like to see a mathematical methods** course. So, **we proposed the course** here, and graduate committee is working on implementing it for us, fairly soon in fact.” ...**Noah**

“I am in the graduate class for quantum and E&M and I am really enjoying it so far. **Taking the undergraduate classes** in bridge program really **helped me** a lot.....**Angela**

“In **my first year** I didn’t participate in departmental events, mostly because I kind of felt like shy. “well, **I am not actually a grad student**, I am taking advanced undergraduate courses!” But **now I am in next year**, I want to feel like that’s my department, **that is where I do research.**” ...**Emma**

Recognition and shared responsibilities

Program support

Mentoring

“Dr. XXXX mentored me about what undergraduate courses that I should take ...and now here I am after that. Dr. XXX was really proud of me after first semester.”Angela

Sense of responsibility

“Faculty, BP advisors, and mentors always reach us to know how we are doing. But, being a second year bridge student now, I feel that I can use that association, that position, to leverage the support, to try to get the message across for new students.”Peter

What did we learn about course-taking community?

Students' evoked efforts

- Abolishing 'falling behind' fear about extra undergraduate level course-taking
- Paving ways for better future course-taking
- Maintaining camaraderie to support the bridge cohort

Programmatic features

- Shared space
- Regular interaction opportunities (with Bridge students & mentors)
- Mentoring for course-taking
- Recognition at recruitment, course-taking & conference

Acknowledgement

- NSF award #1143070.
- APS Bridge Program Team
- STEM Transformation Institute, FIU
- Interview participants

Thank you!!