

Becoming cultural navigators in a graduate physics community

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STEM Transformation Institute

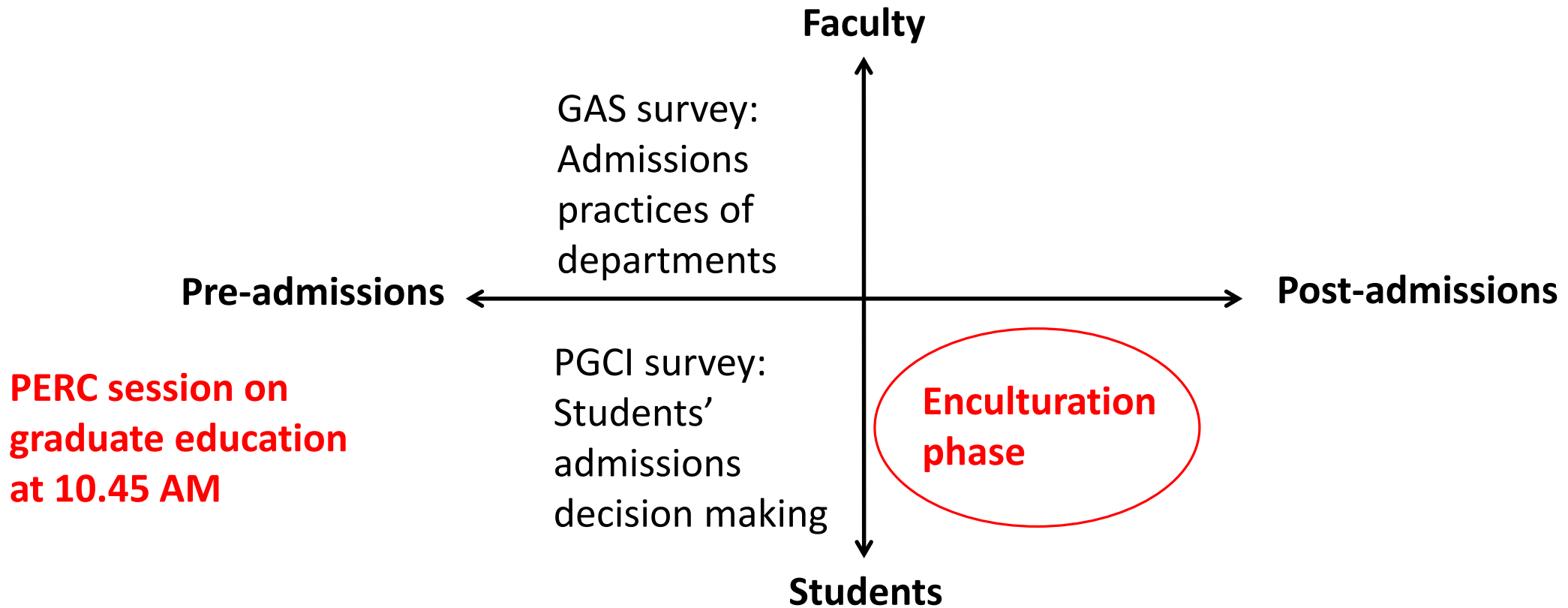
FLORIDA INTERNATIONAL UNIVERSITY



Motivation: APS Bridge program goals

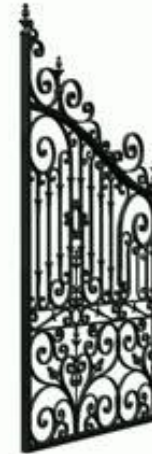
- ❑ Increase the fraction of physics PhDs Awarded to students from historically underrepresented race/ethnic groups in physics.
- ❑ Support universities to help students make the transition into and ultimately complete graduate studies.

Research Model

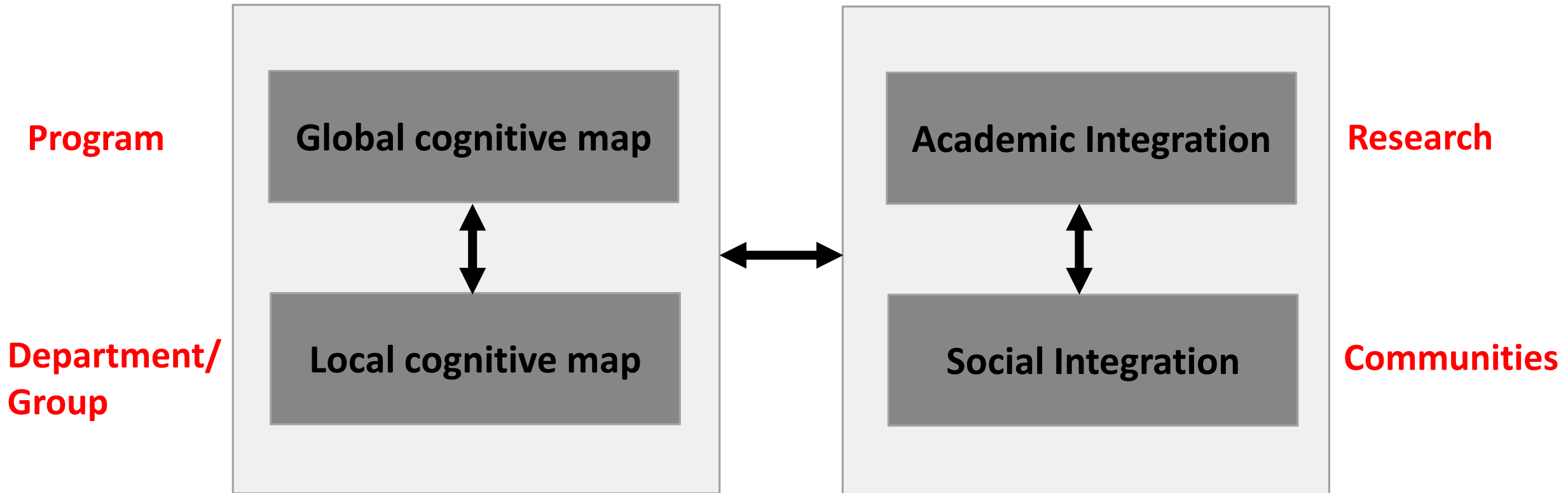


Motivation: Problem of retention

- ❑ Attrition rate: National average ~ 60%
- ❑ Rates are even higher for historically under-represented race/ethnic groups
- ❑ High attrition in the first two years.



Retention: 'How well you know.....?'



Lovitts B., Leaving the Ivory Tower (2001)

Graduate enculturation

Enculturation is
“cultural formation”

Participation

Co-creation

Navigate the
norms

Lave and Wenger, Communities of Practice (1991)
VanManen M., Researching lived experiences (1997)

Research focus

What experiences revealed Bridge students' enculturation to their graduate community?

Communities of Practice framework

Course-takers community

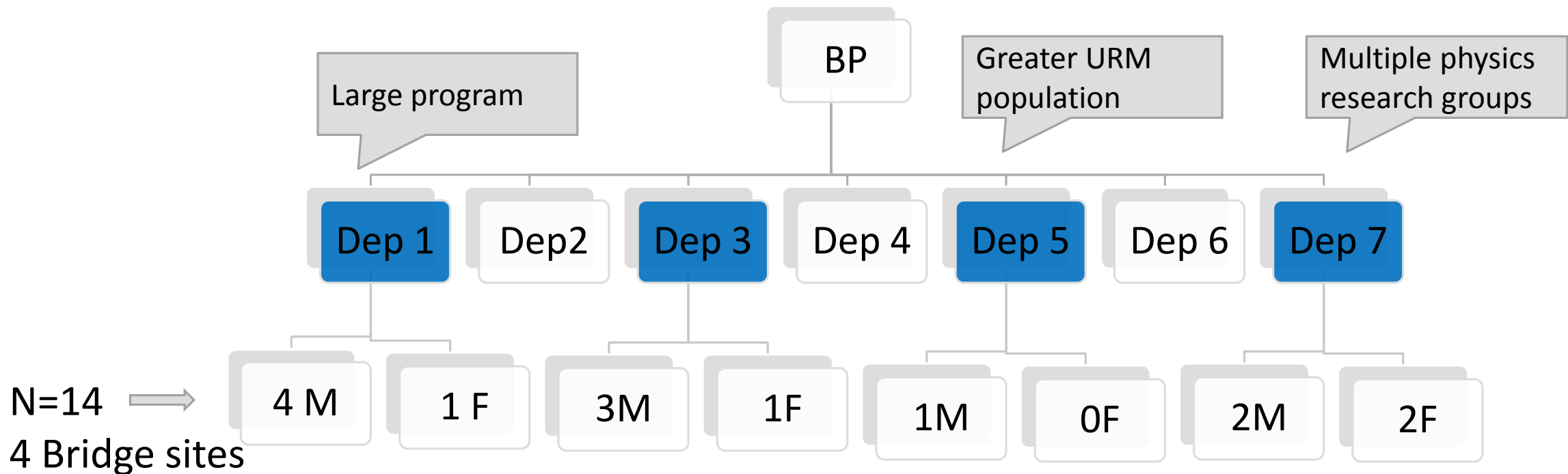
- ❑ We hardly meet our senior grad students, typically, because once you finish the course work, it's all about research. So, they are off where their research carries them.....**Olivia**
- ❑ Some Bridge students taking undergraduate classes stay with graduate students but can't collaborate with them. The undergrads have completely different offices, and many a times they are even not in there!.....**Peter**

Chari and Potvin, Becoming cultural navigators in a graduate physics community, Forum on Education (2018)

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: Open ended interviews



Negotiating membership in the course-taker community

We have a floor where everybody taking core grad 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

**Collaboration
norm**

**Devised strategies
for participation**

Mentoring peripheral participants

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

**Mitigating new
members worries**

Practicing 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 in the program did feel the 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

Identifying barriers

Suggested programmatic changes

Results and implications

- ❑ Shared space is valued for community building.
- ❑ Students maintained a camaraderie to support the incoming cohort.
- ❑ Introducing student-centered practices as regular exercise.

Designated shared space

**Peer-mentors,
Recruit in pairs.**

Acknowledgement

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Thank you!!