Graduate students’ enculturation in physics departments

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Motivations

- Graduate admissions survey, faculty interviews
- Survey of prospective PhD graduates
- Faculty
  - Admissions practices of departments
- Post-admissions
  - Graduate retention rate national average ~60%
- Pre-admissions
  - Students’ perceptions of admissions & decision making
- Students
Motivations

- The organizational culture, structure & process of Ph.D. can make some students leave.
- High attrition rates in the first two years.
- APS Bridge Program (BP): Retention rate 88% (91 out of 103)

Lovitts B., Leaving the Ivory Tower (2001)
What programmatic and social factors provides facilitation during Bridge students’ enculturation to their graduate department?
What we mean by enculturation!!

Dr. G and postdocs discuss recent articles in the group meeting for sure. You better read it.

Social norms, values, practices

If I ask a question, I am one like my group members.
What we mean by enculturation!!

Enculturation is also “cultural formation”

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

Large program

BP

Greater URM population

Multiple physics research groups

Site1: 4 M 1 F
Site2: 3M 1F
Site3: Site 4 M 1 F
Site4: Site 5 M 0 F
Site5: Site 6 M 2 F
Site6: Site 7 M 2 F

N=14
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. XXX 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?

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<th>Students’ evoked efforts</th>
<th>Programmatic features</th>
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<td>❑ Abolishing ‘falling behind’ fear about extra undergraduate level course-taking</td>
<td>❑ Shared space</td>
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<td>❑ Paving ways for better future course-taking</td>
<td>❑ Regular interaction opportunities (with Bridge students &amp; mentors)</td>
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<td>❑ Maintaining camaraderie to support the bridge cohort</td>
<td>❑ Mentoring for course-taking</td>
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Thank you!!