Supporting Undergraduate Research for Globally Distributed Students and Mentors

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Supporting Undergraduate Research for Globally Distributed Students & Mentors

Research supervision in credit-bearing experiences and research mentorship (an extra-curricular experience)

Emily Faulconer, Brent Terwilliger, & Robert Deters
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Undergraduate research has many benefits for students & faculty (and institutions and field).

<table>
<thead>
<tr>
<th>Gain practical experience</th>
<th>Improved understanding of student learning needs</th>
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<tr>
<td>Gain feedback from experts</td>
<td>Improved teaching &amp; research</td>
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<tr>
<td>Disciplinary &amp; transferable skills growth</td>
<td>Active role in students’ professional growth</td>
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<tr>
<td>Networking</td>
<td>Student contributions to research program</td>
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<td>Degree persistence</td>
<td>Mentoring and supervision skills development</td>
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There are notable barriers to undergraduate research participation.

**Student Barriers**
- Unknown opportunities or benefits
- Poor curricular timing
- Confidence & motivation
- Financial or time burden

**Faculty Barriers**
- Faculty status & research program
  - Resources
    - Insufficient professional dev.
  - Time burden & productivity impacts

**Institutional Barriers**
- Investment
- Training program (faculty & students)
- Programmatic review
- Institutional culture
In our faculty population, key barriers were student-focused.

- Deficient student skills & knowledge
- Student motivation
There are unique challenges to making undergraduate research accessible online.

Less aware

Not less interested
Our Solution: a framework of support

- **RSCH 202**
  - Credit-bearing introduction to research course

- **Research Mentoring**
  - Long-term partnership with faculty

- **Resources**
  - Workshops, tutoring, and other resources

- **RSCH 395**
  - Credit-bearing independent research course
Research on the pilot program was supported by the NSF (DUE – IUSE Level 1)

$295,966
Start Date: 10/15/2020
Duration: 36 months

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the view of the National Science Foundation.
We disambiguated research support roles.

- **Research Supervisor**
  - Short Term
  - Disciplinary Knowledge, Skills, Abilities
  - Project Management

- **Research Mentor**
  - Long Term
  - Broadening Perspectives & Horizons
  - Advice and Information
Few students went the credit-bearing route.

Pitts, L. (2022) Flying under the radar: a survey of American air transport pilots to identify aeromedical nondisclosure and mental healthcare-seeking behaviors. [Manuscript submitted]
More students have opted for extra-curricular research experiences.

Publication

Presentation
Mentoring has been a positive experience.

- Improved confidence, increased STEM identity
- Improved research skills – contextualization, written communication, scope and focus, research ethics
- Improved transferable skills: collaboration, problem solving
- Challenges were administrative (faculty off-contract months) and interpersonal (imposter syndrome)
Plan for Phase II

- Add near-peer mentoring
- Industry advisory board
- Continue workshops
- Independent Study → STEM Research Minor
- Student research & travel grants
- Research “classifieds” and workshop to help faculty explore possibilities in their research agenda

Differences

- Stipend
- Course credit
- For-credit course assignment

Prepared students

Motivated students