Recruitment, Evaluation & Tracking

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Recruitment, Evaluation & Tracking

Goals:

- Learn about CISE Evaluation Toolkit: Common Application, A la Carte Survey, Alumni Tracker
- Learn about Successful Recruiting methods
- Consider measurement approaches
- Learn about the resources available through the CISE REU PI Guide website
CISE REU Evaluation Toolkit

Purpose

1. Educate and support CISE REU PIs in site evaluation
2. Inform CISE community of aggregate outcomes

Tools

- Common Application
- Shared Applicant Pool
- A la Carte Survey
- Alumni Tracking Tool

114+ REU sites served since 2010

https://reu.uncc.edu/cise-reu-toolkit
Common Application & Shared Applicant Pool

- Request
- Customize
- Embed
- Select
- Share
  - Release
  - Consent
# Common Application Trends

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Upper Range of # Applicants</td>
<td>152</td>
<td>176</td>
<td>212</td>
<td>299</td>
<td>232</td>
<td>349</td>
<td>286</td>
<td>266</td>
</tr>
<tr>
<td>Avg Applications per Site</td>
<td>77</td>
<td>79</td>
<td>93</td>
<td>112</td>
<td>102</td>
<td>122</td>
<td>108</td>
<td>128</td>
</tr>
<tr>
<td>Largest # of Sites Applied by Individual</td>
<td>30 (n=1)</td>
<td>6 (n=1)</td>
<td>7 (n=2)</td>
<td>18 (n=1)</td>
<td>14 (n=1)</td>
<td>16 (n=1)</td>
<td>9 (n=3)</td>
<td>12 (n=1)</td>
</tr>
<tr>
<td>% Female</td>
<td>27%</td>
<td>26%</td>
<td>24%</td>
<td>28%</td>
<td>27%</td>
<td>26%</td>
<td>32%</td>
<td>27%</td>
</tr>
<tr>
<td>% URM</td>
<td>28%</td>
<td>34%</td>
<td>36%</td>
<td>31%</td>
<td>31%</td>
<td>35%</td>
<td>33%</td>
<td>26%</td>
</tr>
</tbody>
</table>

URM = underrepresented minority group members; includes all groups except caucasian and asian

*Computing Research Association Taulbee Survey 2015-16

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2017

- 45% >1 Site
- 55% 1 Site

CS BS Degrees in US*
- 18% to Women
- 11% to URM
Recruiting Discussion
Recruiting Discussion

• What can be done to increase the number of applicants?
  • The average is 128 applicants in 2017
  • The largest number of applicants is 266 in 2017

• What can be done to increase the percentage of female and under-represented applicants?
  • Women applicants represent 27% of all applications
  • Under-represented applicants represent 26% of all applications
A la Carte Survey Constructs

A la Carte Survey

- Piloted 2010
- Deployed annually
- 38 CISE REU Sites participated 2017

<table>
<thead>
<tr>
<th>CONSTRUCT</th>
<th>ORIGIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELF-EFFICACY</td>
<td>Bandura (1997); LAESE (AWE Assessment Project)</td>
</tr>
<tr>
<td>GRAD SCHOOL</td>
<td>Ajzen’s (2001) theory of planned behavior</td>
</tr>
<tr>
<td>ATTITUDES</td>
<td>Hoegh &amp; Moskal (2009)</td>
</tr>
<tr>
<td>HELP-SEEKING</td>
<td>Struthers, Perry &amp; Menec (2000)</td>
</tr>
<tr>
<td>GRIT</td>
<td>Duckworth &amp; Quinn (2009)</td>
</tr>
<tr>
<td>RESEARCH SKILLS</td>
<td>Survey of Undergraduate Research Experiences (Lopatto)</td>
</tr>
<tr>
<td>SCIENTIFIC LEADERSHIP</td>
<td>Chemers, et al. (2011)</td>
</tr>
<tr>
<td>SCIENTIFIC IDENTITY</td>
<td>Chemers, et al. (2011)</td>
</tr>
<tr>
<td>MENTORING (POST)</td>
<td>Berk, et al. (2005)</td>
</tr>
<tr>
<td>SATISFACTION (POST)</td>
<td>Working Group</td>
</tr>
</tbody>
</table>

5 POINT LIKERT SCALE ITEMS
Sample Survey Items

<table>
<thead>
<tr>
<th>CONSTRUCT</th>
<th>SAMPLE ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST ITEM</td>
<td>Please indicate the specific field applicable to your research project:</td>
</tr>
<tr>
<td>SELF-EFFICACY</td>
<td>I can understand research literature</td>
</tr>
<tr>
<td>GRAD SCHOOL</td>
<td>For me, to apply to graduate school is (extremely good/extremely bad)</td>
</tr>
<tr>
<td>ATTITUDES</td>
<td>I like to use [x] to solve problems</td>
</tr>
<tr>
<td>HELP-SEEKING</td>
<td>When I do poorly on an exam….</td>
</tr>
<tr>
<td>GRIT</td>
<td>I am diligent</td>
</tr>
<tr>
<td>RESEARCH SKILLS</td>
<td>Formulate a research hypothesis</td>
</tr>
<tr>
<td>SCIENTIFIC LEADERSHIP</td>
<td>I know how to be a good team member</td>
</tr>
<tr>
<td>SCIENTIFIC IDENTITY</td>
<td>I feel like I belong in science</td>
</tr>
<tr>
<td>MENTORING (POST)</td>
<td>My mentor was approachable</td>
</tr>
<tr>
<td>SATISFACTION (POST)</td>
<td>How satisfied were you with your research experience</td>
</tr>
</tbody>
</table>
Methodology

Design

• Quasi-experimental: repeated measures

Procedure

• Email invitations to students
  • From PI during first week
  • From Rorrer during last week
  • Consent obtained from PIs and Students
2017

38 sites used survey (52 total)

73% site participation

- Pre Survey n= 297
- Post Survey n= 249
- 234 matched pairs

Estimated response rate: 66%

Gender

43% Female
57% Male

URM
37% Majority
63%
Statistically significant differences were observed:

<table>
<thead>
<tr>
<th>Construct</th>
<th>Pre-Survey</th>
<th>Post-Survey</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy</td>
<td>3.71 (.62)</td>
<td>*4.08 (.93)</td>
<td>0.000</td>
</tr>
<tr>
<td>Graduate School</td>
<td>3.84 (.77)</td>
<td>3.67 (1.04)</td>
<td>0.09</td>
</tr>
<tr>
<td>Attitudes</td>
<td>4.36 (.51)</td>
<td>*4.06 (.97)</td>
<td>0.001</td>
</tr>
<tr>
<td>Help-Seeking/ Coping</td>
<td>4.37 (.62)</td>
<td>4.29 (.97)</td>
<td>0.39</td>
</tr>
<tr>
<td>Grit</td>
<td>3.38 (.34)</td>
<td>3.31 (.74)</td>
<td>0.72</td>
</tr>
<tr>
<td>Research Skills</td>
<td>3.20 (.64)</td>
<td>*3.82 (.96)</td>
<td>0.000</td>
</tr>
<tr>
<td>Scientific Leadership</td>
<td>4.09 (.73)</td>
<td>*4.15 (1.07)</td>
<td>0.000</td>
</tr>
<tr>
<td>Scientific Identity</td>
<td>3.37 (1.03)</td>
<td>*3.47 (1.28)</td>
<td>0.006</td>
</tr>
<tr>
<td>Mentoring</td>
<td>NA</td>
<td>4.44</td>
<td>NA</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>NA</td>
<td>3.34</td>
<td>NA</td>
</tr>
</tbody>
</table>

Wilcoxon test
Measurements Discussion
Measurements Discussion

• What measurement categories are of interest?
  • Should additional ‘modules’ be considered?
  • Would anyone want to test new constructs?
Measurements Discussion

• What compels students to pursue graduate school?

• Should any graduate school (e.g. MS, PhD) or professional school (e.g. MBA, JD, MD) count?
Alumni Tracker

Working Group Advisors

- Tiffany Barnes, North Carolina State
- Claire Dugan, Northeastern
- Huirong Fu, Oakland
- Lazaros Gallos, Rutgers
- Stephen Gilbert, Iowa State
- Jamie Payton, Temple
- Tiffany Reardon, Berkeley
- Bonnie Swan, Univ. Central Florida
Alumni Tracker

Similar to Common Application: PI distributes

Feedback: audrey.rorrer@uncc.edu
Alumni Tracking Discussion
Alumni Tracking Discussion

• How to assess impact of REU program?

• How helpful was the REU program been in choosing your career path?

  • “It convinced me that graduate school was the option for me”

  • “It showed me what the research was about and increased my passion for pursuing a career in research”

  • “This experience was like no other in the way it exposed me to life in academia. The resources it provided and the events planned were invaluable in my understanding of life and a career in research.”

Not Helpful
11%

Helpful
89%
We hope this website serves as a guide to orient and direct any new or ongoing professionals involved in running an REU site. The primary objective is to smooth the process of running an REU site, especially new REU site PIs, by providing information about the different components or running an effective site. Each available topic contains helpful tips, advice, and resources.

START BY READING ABOUT THE REU CALENDAR
REU CALENDAR

REUs vary according to the research and the site structure, but a sample timeline of running an REU site is below. We have highlighted some important aspects that can affect the success of an REU site, followed by a quick yearly to-do sample list.

A detailed sample yearly to-do list:

- Set up your website with program dates and application procedure

Printer Friendly Calendar List [PDF] | Word Template Calendar List [Docx]
Results positive overall: 78% of Likert ratings "somewhat agree" or "strongly agree."

Design Process

- Inspired by CISE REU PI Wiki and cisereu.org
- Requirements gathering
  - 2017 New REU PI Meeting
  - REU PI Interviews
- Iterative design
- Contacted 237 PIs for feedback
- 22 responses

Results positive overall: 78% of Likert ratings "somewhat agree" or "strongly agree."
We are planning another design update this summer
Please comment or suggest documents that could be examples!

Email:
Stephen Gilbert, gilbert@iastate.edu
Jamie Payton, payton@temple.edu
Questions?