Teachers in Industry: A model program to increase teacher retention and use of 21st century skills

Professional Preparation Board

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MARCH 8, 2016
University of Arizona STEM Learning Center’s flagship STEM teacher professional development and retention program.

Partnership between the University of Arizona Colleges of Education and Science; Tucson Values Teachers, and Southern Arizona Leadership Council

Current support provided by:
1) Thomas R. Brown Family Foundations  
2) Freeport-McMoRan
Business partners

Arizona Research Laboratories
Arizona Electric Power Cooperative, Inc.
Banner Health
Beach Fleischman
BFC
Biosphere 2
BiOvigilant
Cegene
Critical Path Institute
Freeport-McMoRan Copper & Gold
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PARAGON
Palo Verde
Piper Planning Inc.
Raytheon
SRP
Southwestern Power Group II
SANOFI
Sundt
SIMPACO
Texas Instruments
Tucson Medical Center
Tucson Airport Authority
Tucson Electric Power
VENTANA
USDA
U.S. Army
Increase teacher retention

Equip teachers with experiences to prepare their students for the 21st century workforce
How it works

- Teachers apply
- Businesses identify a 7-9 week work assignment
- We help business to identify best candidates
- Teachers work during the summer; Fridays reserved for UA coursework
- Businesses pay teachers an industry-level wage
- Funding provides significant tuition remission for master’s students
Two options for STEM teachers

- Master's degree in STEM Education
- Professional development option
### Numbers

<table>
<thead>
<tr>
<th></th>
<th>Master’s Program</th>
<th>Professional Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduates &amp; Completers</td>
<td>42</td>
<td>35</td>
</tr>
<tr>
<td>Currently Active</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Applications for 2016</td>
<td>15</td>
<td>30</td>
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</tbody>
</table>

Projected 50 participants in summer 2016
Retention of Alumni and Active Participants (since 2009)

93% retention in the education field (actively teaching, retired from teaching or working in an education support position) compared to a 5-year, 50% attrition rate in AZ (Tirozzi, Carbonaro, Winters, 2014)
## District Participation

<table>
<thead>
<tr>
<th>District (S. Ariz)</th>
<th>Number of Teachers</th>
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</thead>
<tbody>
<tr>
<td>Amphi USD</td>
<td>5</td>
</tr>
<tr>
<td>Benson USD</td>
<td>1</td>
</tr>
<tr>
<td>Marana USD</td>
<td>6</td>
</tr>
<tr>
<td>Sahuarita USD</td>
<td>6</td>
</tr>
<tr>
<td>Tucson USD</td>
<td>34</td>
</tr>
<tr>
<td>Sunnyside USD</td>
<td>2</td>
</tr>
<tr>
<td>Vail USD</td>
<td>4</td>
</tr>
<tr>
<td>Private/Charter</td>
<td>9</td>
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</table>
Increased Students’ Knowledge

I know what types of jobs are available in STEM

Middle School Paired (n=569)

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
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<tbody>
<tr>
<td>Yes</td>
<td>50%</td>
<td>65%</td>
</tr>
<tr>
<td>No</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Unsure</td>
<td></td>
<td>45%</td>
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</table>

High School Paired (n=479)

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<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
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<tbody>
<tr>
<td>Yes</td>
<td>60%</td>
<td>78%</td>
</tr>
<tr>
<td>No</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Unsure</td>
<td>38%</td>
<td>21%</td>
</tr>
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</table>
Increased Student Engagement

21st Century Skills That Students Reported Being Engaged In

![Bar chart showing the percentage of students engaged in various skills. The skills are: Teamwork, Communication, Critical Thinking, Problem Solving, Creativity, Innovation, Collaboration, Technology. The data is divided into MS post (n=786) and HS post (n=674).]
Benefits to Schools

Teachers in Industry alumni are taking on more leadership roles: becoming department chairs at their schools, creating new curricula, starting new STEM courses and clubs at their schools, and leading professional development for other teachers.
Summary of Results

- Better teacher retention
- More dynamic teachers
- More fulfilled teachers
- STEM-excited students
- Benefits the community
How You Can Partner with Teachers in Industry

• Select high needs schools
• Select promising teachers to retain
• Recommend teachers directly to us
• Support teachers