Increasing the Impact of TUES Projects through Effective Propagation Strategies: A How-To Guide for PIs

Charles Henderson*, Renee Cole†, Jeff Froyd‡, Raina Khatir†, Courtney Stanford†
*Western Michigan University, †University of Iowa, ‡Texas A&M University

Goal of Project
The goal of this TUES Central Resource Project is to help TUES PIs develop strong propagation strategies.

Overview of Project

1. Characterize Typical Practice
   - 1A. Aims of TUES and PI analyses of propagation (2012)
   - 1B. Analysis of propagation

2. Characterize Highly Successful Practice
   - 2A. Analysis of propagation
   - 2B. Analysis of propagation
   - 2C. Analysis of propagation


Propagation involves both:
1) broadcasting the results of their project, and
2) promoting adoption/adaptation of those results.

Next step: Case Studies (N~6)

We need your feedback on our list of well-propagated instructional strategies and materials.

What is Propagation?
TUES PIs and Program Directors use the term “dissemination” to mean a wide variety of things, often passive. We have chosen, instead, to use the term propagation to refer to the work PIs do to promote the spread of their teaching materials or instructional strategies.

Propagation involves both:
1) broadcasting the results of their project, and
2) promoting adoption/adaptation of those results.

NSF Program Directors (PDs)
From January 2011 meeting with groups of PDs from each TUES discipline:

<table>
<thead>
<tr>
<th>Task</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PDs should visit traditional methods (publishing a paper, presenting at conferences) as effective propagation tools.</td>
<td>25%</td>
</tr>
<tr>
<td>2. PDs need to see more collaborations between PIs at different institutions, more faculty have a role in the innovation and it has a mentor-mentee relationship.</td>
<td>15%</td>
</tr>
<tr>
<td>3. PDs should consider workshops for the most effective propagation tool (immediate multi-day workshops with follow-up, interaction with the PI to others adopting the innovation).</td>
<td>20%</td>
</tr>
<tr>
<td>4. PDs should observe that many well propagating projects had been funded over a long period of time (10 years or more) through a variety of related grants.</td>
<td>10%</td>
</tr>
</tbody>
</table>

NSF Principle Investigators (PIs)
Analysis of Fall 2011 survey of 1285 TUES PIs by Trent, McMartin, and Muramoto.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Top Method</th>
<th>Mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication</td>
<td>28%</td>
<td>48%</td>
</tr>
<tr>
<td>Conference presentation</td>
<td>20</td>
<td>35</td>
</tr>
<tr>
<td>Share with colleagues</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Workshop</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>Website</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Textbook</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Mentor students</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Conclusions
- PIs and PDs share a common goal, that faculty at other institutions adopt the innovation.
- PIs have a linear idea of how to propagate their materials, using traditional “mass-market” channels to share their work with others.
- PIs believe these methods don’t lead to sustained changes at multiple institutions.
- PDs want to see PIs using more interactive methods, such as existing help from professional societies and running immersive, multi-day workshops.
- PDs also want to see propagation built into the project from the earliest stages, for example by having collaborators from other institutions.

Implications
- There is a disconnect between PI and PD expectations.
- PIs don’t feel prepared to take on a more active role in propagation, and the NSF offers little guidance.
- Both groups would benefit from thinking about propagation as occurring throughout the project.

We need your feedback on our rubric to categorize propagation strategies.

See attached paper copy or download your copy at: http://www.increasetheimpact.com or scan the QR code.

- What aspects of the rubric are most useful in helping you think about propagation or dissemination?
- What is unclear about the rubric?
- What things, if any, are missing from the rubric?
- What would improve the usability of the rubric?

Send feedback to: Charles.Henderson@wmich.edu

Acknowledgements
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Check us out!
http://www.increasetheimpact.com

Well-Propagated Instructional Strategies and Materials

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alice</td>
<td>BlueJ, Cabib geometry, ConceptTests, GeoGebra, Google Earth, Harvard Calculus Materials, Jigas, JITT (Just in Time Teaching)</td>
</tr>
<tr>
<td>Learning Assistants Lecture Tutorials</td>
<td></td>
</tr>
<tr>
<td>LOCAPA, National Center for Case Study Teaching, Nature of Life/Biology Bootcamp programs, Peer Instruction, PHET simulations, PPLT (Peer Led Team Learning), POSS (Process-Oriented Guided Inquiry Learning), SCALE-UP (Student-Centered Active Learning Environment for Undergraduate Programs), TiP (Tutorials in Introductory Physics)</td>
<td></td>
</tr>
<tr>
<td>Tremen Programs, WebWorK</td>
<td></td>
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</tbody>
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