LAI Educational Network: Are We Making a Difference?

LAI Executive Board Dinner
April 17, 2007
The LAI EdNet
April 2007

32 Member Schools

AFIT
AZ State U
Cal Poly SLO
Cranfield (UK)
DAU
Embry-Riddle
Georgia Tech
Indiana State Univ
Jacksonville Univ
Loyola College, MD
Loyola Marymount
Macon State Col
MIT
Old Dominion Univ
North Carolina State
Purdue Univ
St. Louis Univ, MO
San Jose State Univ
U of AL, Huntsville
U of Iowa
U of Michigan
U MO Rolla
USC
U of Bath (UK)
U of South Florida
U of Tenn, Knoxville
U of New Orleans
U of Louisiana, Lafayette
U of Warwick (UK)
Wichita State Univ
Wright State Univ
WPI

Plus a 3-person (~1.5 FTE) EdNet Staff to coordinate, develop, and deliver curriculum

3 UK schools

leam.mit.edu/ednet © 2007 MIT, Apr 17 LAI Executive Board Dinner
Vision: EdNet is a learning community dedicated to creating, deploying, and continuously improving curriculum for enterprise excellence; noticeably impacting workforce capability; and recognized as a model of collaborative innovation.

Mission: EdNet will leverage member’s expertise and resources through collaboration and networking to accelerate the development and deployment of curriculum for achieving enterprise excellence.

Educate, Motivate, Innovate
LAI Lean Academy® Courses

Curriculum
- Lean Enterprise fundamentals
- Concepts & real-life examples
- Active learning pedagogy (50%)
- 5 day, 3 day, 1 day formats
- Before & after lean proficiency assessed
- Targeted audiences
  - Instructors
  - Undergraduate or graduate
  - Interns, co-ops
  - Lean newbies

Strategy
- Develop, deploy curriculum
- Start with LAI offerings
- Diffuse to on-campus offerings
- Link academia with industry
- Develop faculty competency
Lean Proficiency Assessed

**LAI Lean Academy VALUE Self-Assessment Scale**

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Unaware</td>
</tr>
<tr>
<td>1</td>
<td>Aware</td>
</tr>
<tr>
<td>2</td>
<td>Ready</td>
</tr>
<tr>
<td>3</td>
<td>Capable</td>
</tr>
<tr>
<td>4</td>
<td>Skilled</td>
</tr>
<tr>
<td>5</td>
<td>Expert</td>
</tr>
</tbody>
</table>

![Graph showing proficiency levels before and after LAI Lean Academy courses]
You Can’t Teach What You Don’t Know

• Faculty competency is required to deploy curriculum
• Is EdNet helping build faculty competency?
• EdNet instructors surveyed in March 2007

<table>
<thead>
<tr>
<th>Population</th>
<th>Instructor Rank</th>
<th>Institution</th>
<th>Discipline</th>
<th>Academy Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tenure</td>
<td>Instruct</td>
<td>Other</td>
<td>Private</td>
</tr>
<tr>
<td>Survey (37)</td>
<td>48%</td>
<td>30%</td>
<td>22%</td>
<td>38%</td>
</tr>
<tr>
<td>Response (18)</td>
<td>39%</td>
<td>39%</td>
<td>22%</td>
<td>50%</td>
</tr>
</tbody>
</table>

• Findings published in “Enhancing Faculty Competency in Lean Thinking Bodies of Knowledge” for Jun 07 MIT CDIO Conference
EdNet Instructor Proficiency

From “Capable” to “Skilled”
Please compare EdNet activities to other ways of improving your teaching of the fundamentals of lean practices and principles.

- Developing LAI Lean Academy curriculum
- Teaching a LAI Lean Academy course
- Learning new pedagogy
- Collaborating with EdNet members
- EdNet meetings and workshops
- On site plant tours
- Importing curriculum
- Collaborating with LAI members

Percent of 18 Responses

<table>
<thead>
<tr>
<th>Activity</th>
<th>5 Much Greater</th>
<th>4 - Somewhat More</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing LAI Lean Academy curriculum</td>
<td></td>
<td>97%</td>
</tr>
<tr>
<td>Teaching a LAI Lean Academy course</td>
<td></td>
<td>89%</td>
</tr>
<tr>
<td>Learning new pedagogy</td>
<td></td>
<td>83%</td>
</tr>
<tr>
<td>Collaborating with EdNet members</td>
<td></td>
<td>79%</td>
</tr>
<tr>
<td>EdNet meetings and workshops</td>
<td></td>
<td>67%</td>
</tr>
<tr>
<td>On site plant tours</td>
<td></td>
<td>59%</td>
</tr>
<tr>
<td>Importing curriculum</td>
<td></td>
<td>55%</td>
</tr>
<tr>
<td>Collaborating with LAI members</td>
<td></td>
<td>44%</td>
</tr>
</tbody>
</table>
## EdNet’s Value Added

### EdNet Activities

<table>
<thead>
<tr>
<th>Competency Areas</th>
<th>Awareness of Implementation</th>
<th>Knowledge of Fundamentals</th>
<th>Knowledge of Application</th>
<th>Teaching of Fundamentals</th>
<th>Teaching of Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing LAI Lean Academy curriculum</td>
<td></td>
<td>★</td>
<td>★</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Teaching an LAI Lean Academy course</td>
<td>★</td>
<td>★</td>
<td>★</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaborating/partnering with EdNet members</td>
<td></td>
<td>★</td>
<td></td>
<td>★</td>
<td></td>
</tr>
<tr>
<td>On site plant tours</td>
<td></td>
<td>★</td>
<td></td>
<td>★</td>
<td></td>
</tr>
<tr>
<td>Learning new pedagogy from EdNet members</td>
<td></td>
<td></td>
<td></td>
<td>★</td>
<td></td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>EdNet meetings and workshops</td>
<td></td>
<td></td>
<td></td>
<td>★</td>
<td></td>
</tr>
<tr>
<td>Importing LAI Lean Academy or other curriculum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taking an LAI Lean Academy course</td>
<td></td>
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**Legend**
- [ ] 67% or more rated this (4) “somewhat more” or (5) “much greater”
- [★] Top EdNet activities for this competency area

### Curriculum collaboration is effective for improving competency
What the Faculty Say

“I knew essentially nothing about Lean prior to becoming involved in EdNet. I now use Lean every semester within my aircraft design class.” - Professor of Aerospace Engineering. Proficiency change from 0.3 to 3

“The Lean Academy curriculum is modular and provides flexibility to be inserted as a module in existing courses. The real life examples illustrated in the Lean Academy curriculum are fabulous” – Professor of Engineering Management and Systems Engineering. Proficiency change from 3.6 to 4.0

“Without a doubt, my involvement with LAI/EdNet has been the most important factor in not only improving my competency to teach lean principles and practices, but also in the development of my teaching in any context.” - Assistant Professor of Management Sciences. Proficiency change from 1.8 to 4
Opportunity

• Collectively we can make a difference
• Good start, but much more to do
• Creative suggestions needed for leveraging our collective resources.
• Think about
  • Exerting “customer pull” with some of your schools (Northrop Grumman - Cal Poly)
  • “Priming the pump” by hosting an on-campus LAI Lean Academy (Rockwell Collins - U of Iowa)
  • Strategies that fit your organization’s resources

Call 1-800-LAI-EdNet with suggestions!
Back Up Slides
Awareness of Implementation

Please compare EdNet activities to other ways of improving your awareness of industry and government implementation of lean practices and principles.

Percent of 18 Responses

- Teaching a LAI Lean Academy course
- Collaborating with EdNet members
- EdNet meetings and workshops
- Developing LAI Lean Academy curriculum
- On site plant tours
- Collaborating with LAI members
- Importing curriculum
- Learning new pedagogy
- Taking an LAI Lean Academy course

5 - Much Greater
4 - Somewhat More
Please compare EdNet activities to other ways of improving your knowledge of the fundamentals of lean practices and principles.

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Percent of 18 Responses

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Please compare EdNet activities to other ways of improving your knowledge of the application of lean practices and principles.

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- On site plant tours
- Collaborating with EdNet members
- Teaching a LAI Lean Academy course
- Collaborating with LAI members
- Learning new pedagogy
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Percent of 18 Responses

- 5 - Much Greater
- 4 - Somewhat More

Percent of 18 Responses
Proficiency by Instructor

Proficiency Level
Pre EdNet  Increase During EdNet

Responder (E=Engineering, M=Management)
### Proficiency by Lean Enterprise Knowledge Area

<table>
<thead>
<tr>
<th>Knowledge Area</th>
<th>Pre EdNet</th>
<th>Gain During EdNet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lean Implementation</td>
<td><img src="#" alt="Graph" /></td>
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<tr>
<td>Role of people and organizations</td>
<td><img src="#" alt="Graph" /></td>
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<tr>
<td>Quality/Six Sigma</td>
<td><img src="#" alt="Graph" /></td>
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<tr>
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</tr>
<tr>
<td>Lean SCM principles</td>
<td><img src="#" alt="Graph" /></td>
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<tr>
<td>Lean Engineering principles</td>
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</tr>
<tr>
<td>lean office principles</td>
<td><img src="#" alt="Graph" /></td>
<td><img src="#" alt="Graph" /></td>
</tr>
<tr>
<td>Lean tools and concepts</td>
<td><img src="#" alt="Graph" /></td>
<td><img src="#" alt="Graph" /></td>
</tr>
<tr>
<td>5 fundamental principles of lean thinking</td>
<td><img src="#" alt="Graph" /></td>
<td><img src="#" alt="Graph" /></td>
</tr>
<tr>
<td>Process concepts</td>
<td><img src="#" alt="Graph" /></td>
<td><img src="#" alt="Graph" /></td>
</tr>
<tr>
<td>Defintion of lean</td>
<td><img src="#" alt="Graph" /></td>
<td><img src="#" alt="Graph" /></td>
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<tr>
<td>Context for Lean in aerospace</td>
<td><img src="#" alt="Graph" /></td>
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</tbody>
</table>

### Proficiency Level Graph

- **Lean Implementation**
- **Role of people and organizations**
- **Quality/Six Sigma**
- **Lean Enterprise principles**
- **Lean SCM principles**
- **Lean Engineering principles**
- **lean office principles**
- **Lean tools and concepts**
- **5 fundamental principles of lean thinking**
- **Process concepts**
- **Defintion of lean**
- **Context for Lean in aerospace**