Process Technology Program Impact

Coking.com Safety Seminar
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Overview

- CAPT Partnership
- CAPT Activities
- What makes a program sustainable?
- Why should Industry be a partner?
- Why is ROI important?
  - Industry
  - Education
- Process
- Results
- Summary
- CAPT Impact
CAPT Partnership

The Center for the Advancement of Process Technology is one of Thirty National Science Foundation Advanced Technological Education (ATE) centers in the United States. CAPT is the only center to focus on process technology education.

CAPT Activities

- Curriculum Development for Two-Year Process Technology Degree Programs with Concentrations in Chemical/Refining, Exploration/Production, and Pharmaceuticals
- Summer Faculty Institutes
- Student and Faculty Internships
- Marketing Strategies for Underrepresented Groups
- Annual Critical Issues and Best Practices Conference
What Makes Programs Sustainable?

- Adequate funding
- Diverse sources of funding
- Placement of graduates based on industry needs
- Diverse industry base to support program
- True collaborative effort between industry and education including accountability
Why should Industry be a Partner?

- Cost effective method for outsourcing
- Standard products (graduates and curriculum)
- Component of long-term business strategy
- Positive public image builder

Why is ROI Important to Industry?

- Provides evidence of value to promote continued involvement with community colleges
- Provides an incentive to go beyond an industry’s social obligation to be a good corporate partner
Why is ROI Important to Education?

- Establishes confidence and trust in the community college to provide a quality education and to respond in a timely manner
- Encourages top level industry support for deeper involvement in the partnership
  - Equipment donations
  - Scholarships
  - Internships
  - Adjuncts for new programs paid by industry
  - Publicity by industry for the program

Process

Four levels of Kirkpatrick’s evaluation model:

- Level 1: Learner reaction
- Level 2: Learning
- Level 3: Transfer of learning to job
- Level 4: Organizational effects
  Return on investment
Process

- Determine need for measuring ROI
- Determine measures for ROI (chosen by industry):
  - Post-hire training time
  - Job post qualification time
  - Operating incidents attributable to error
  - Number of near misses and safety-related incidents
  - Attendance
  - Punctuality
  - Industry man-hours spent

Results
**Streamlining the Hiring Process**

<table>
<thead>
<tr>
<th></th>
<th>Pre-AAS or Exp Req</th>
<th>AAS or Exp Req</th>
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</thead>
<tbody>
<tr>
<td>Applications</td>
<td>3000</td>
<td>1200 (350*)</td>
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<tr>
<td>Interviews</td>
<td>240</td>
<td>75</td>
</tr>
<tr>
<td>Job Openings</td>
<td>20</td>
<td>26</td>
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</tbody>
</table>

*Met Minimum Qualifications

Amoco Study, Texas City, 1997

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**Testing Benefits**

**Comparative Study Between Pre-Employment Tests Scores of AAS in PTEC™ and General Population**

<table>
<thead>
<tr>
<th>Test</th>
<th>% Improvement</th>
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<tbody>
<tr>
<td>Learning Ability</td>
<td>28</td>
</tr>
<tr>
<td>Arithmetic Reasoning</td>
<td>28</td>
</tr>
<tr>
<td>Chemical Comprehension</td>
<td>81</td>
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<tr>
<td>Mechanical Comprehension</td>
<td>53</td>
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CTGDO, Lake Charles, 2001
Testing Benefits

<table>
<thead>
<tr>
<th>Group</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Population</td>
<td>33</td>
</tr>
<tr>
<td>AAS Degree in PT</td>
<td>66</td>
</tr>
</tbody>
</table>

ExxonMobil, Baytown and Baton Rouge, 1999

Reduction in Training Costs

22 Basic Training Days Reduced to
- 7 With AAS Degree in PT or 7 Yrs. Experience
15 Days Saved
x 225 Avg Cost Per Person Per Day of Training
$3,375 Avg Savings Per Person
x 12 Number in Training Class
$40,500 Savings in Actual Training Time

Amoco Study, Texas City, 1997
Reduction in Qualification Time

- Complete qualification requirements ~40% faster than students w/o AAS who take Basic Operations course
- Case Example: 44 days for outside job qualification instead of 120 days -- $13,000 savings in overtime costs
- Total savings during study -- $156,000

Amoco Study, Texas City, 1997

Decreased Safety Incidents

When comparing employees with AAS degree and from general population over a 2 year period, degreed employees had 37% better safety performance record.

Serious Injuries
Injuries requiring medical treatment
Minor injuries; e.g.: first aid
Potential exposures or opportunities for injury; e.g. near misses

Amoco Study, Texas City, 1997
Summary

- Measures can be identified to capture return on investment data
- Measures must be agreed upon by industry and education prior to the effort
- ROI data can then be used to build additional support in both industry and education for the program through increased credibility

CAPT Impact

- 40% Reduction in Interviewing (5 to 3)
- 28 – 81% Improvement on Pre-Employment Test Scores
- 65% Reduction in Basic Training Time in Industry
- 40% Reduction on Job Post Qualification Time
- 37% Better Safety Performance Record
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