Process Technology Program Impact

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Center for the Advancement of
Process Technology (CAPT)

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
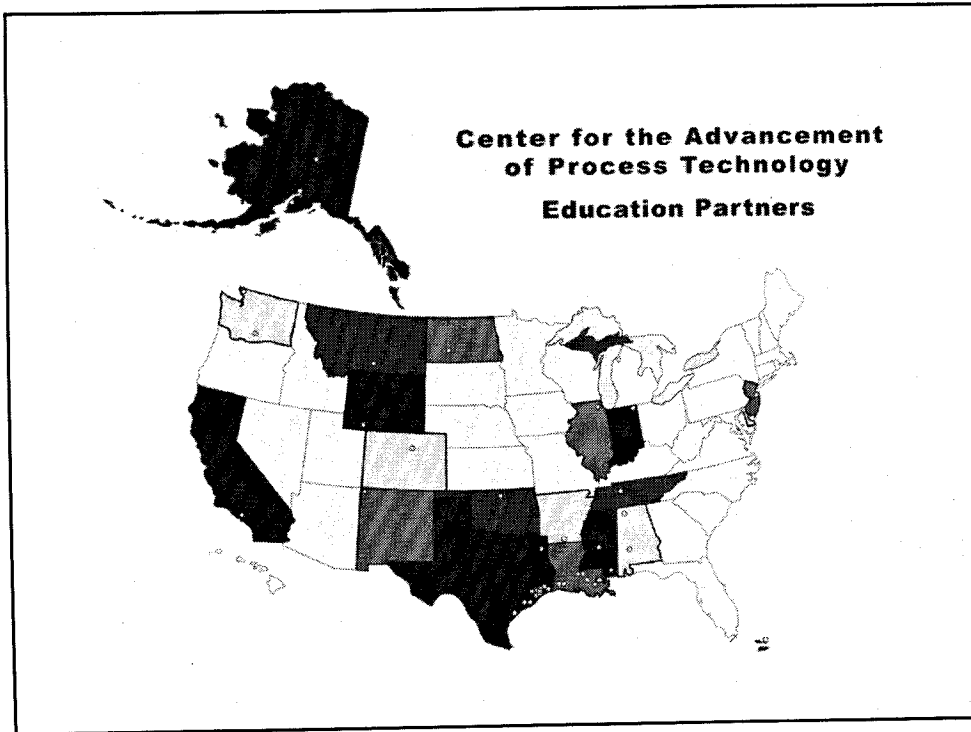process technology education.

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

**Center for the Advancement
of Process Technology**

Education Partners

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

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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

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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

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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

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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

	Pre-AAS or Exp Req	AAS or Exp Req
Applications	3000	1200 (350*)
Interviews	240	75
Job Openings	20	26

* Met Minimum Qualifications

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Amoco Study, Texas City, 1997

Testing Benefits

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

Test	% Improvement
Learning Ability	28
Arithmetic Reasoning	28
Chemical Comprehension	81
Mechanical Comprehension	53

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CITGO, Lake Charles, 2001

Testing Benefits

Group	Percent Passing
General Population	33
AAS Degree in PT	66

ExxonMobil, Baytown and Baton Rouge, 1999

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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

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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
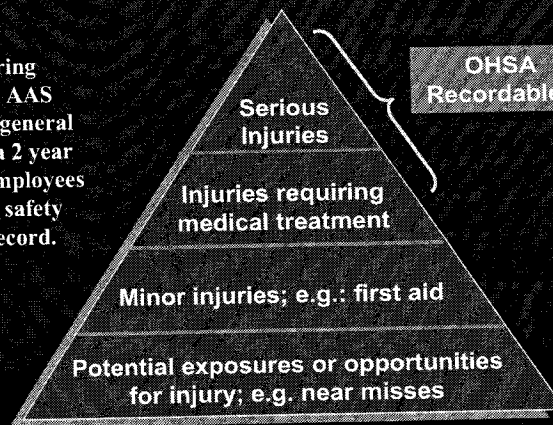- Total savings during study -- $156,000

Amoco Study, Texas City, 1997

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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.

OHSA Recordables

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

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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

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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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