

**Pennsylvania Governor's Institute for  
Agricultural Sciences and Advanced Manufacturing Careers**

**July 22-25, 2002**

**Evaluation Report  
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# **Pennsylvania Governor's Institute for Agricultural Sciences and Advanced Manufacturing Careers**

## **Evaluation Report**

### **Introduction**

The Pennsylvania Department of Education and the Center for Professional Personnel Development in Career and Technical Education at Penn State University offered the Governor's Institute for Agricultural Sciences and Advanced Manufacturing Career at the Blair County Convention Center in Altoona, Pennsylvania, July 22-25, 2002. The Institute was available to all Pennsylvania academic and career and technical educators and administrators interested in exploring agricultural science and advanced manufacturing careers through standards-based curriculum development.

During the week participants attended many workshops and industry site visits to help them integrate the use of technology in their instruction and develop standards-based curriculum. The agenda was multi-faceted and included whole group sessions, repeated small workshops, small group projects and industry site visits that engaged all the participants. The final product of the Institute was a unit or project outline from each team of teachers using the process and teaching ideas presented during the Institute. From this final assignment, 32 unit outlines were developed and aligned with standards. They will be available on the Workforce Education and Development website.

Whole group sessions included: An introduction to standards, PSSA test information, and the steps to align curriculum with standards. Small group workshops included: teaching math and reading effectively, working with manufacturing standards, and the Agricultural Education Content Standards and Benchmarks. Teams of teachers met in small groups and developed unit outlines aligned to standards. Industry site visits included: Veeder-Root, Hoss's Fresh Xpress, Appleton Papers, New Enterprise Stone Lime Pre-Stress Plant, and DelGrosso's factory. In addition to the site visits the participants spent time at the Penn State Altoona campus in the computer lab completing their unit outlines.

Participants also had the opportunity to network with colleagues, share strategies for improving their instruction, and reflect on what they were learning.

### **Evaluation Purpose and Objectives**

The purpose of this evaluation was to provide the Pennsylvania Department of Education (PDE) and the Center for Professional Personnel Development at Penn State University with an objective-based evaluation to determine the effectiveness of the 2002 Pennsylvania Governor's Institute for Agricultural Sciences and Advanced Manufacturing Careers. The following six objectives guiding this evaluation include:

Objective 1 To determine the effectiveness of the Institute in preparing participants to develop unit outlines for their curriculum that support the implementation of both occupational skill standards and the Pennsylvania academic standards, as measured by the Pennsylvania System of School Assessment.

Objective 2 To obtain feedback from program presenters and sponsoring educational institutions, and participating business/industry representatives regarding the design of the institute, the effectiveness of individual teacher participation, and the quantity and quality of standards-based unit outlines that were developed.

- Objective 3 To determine knowledge gain of participants relative to key subject matter topics discussed/presented at the Institute.
- Objective 4 To determine if the Institute achieved its intended goals.
- Objective 5 To determine the extent to which the Institute met the needs and expectations of Institute participants.
- Objective 6 To determine the extent to which Institute participants are using (applying) the information presented at the Institute in their classrooms.

## **Methodology**

### **Marketing the Institute**

The Institute was marketed to educators in Pennsylvania who might be interested in the Agriculture Sciences or Advanced Manufacturing Careers. In February 2002 the Institute was announced in the Ag Briefs newsletter that is mailed to agricultural educators throughout Pennsylvania. In March 2002 an invitation letter was mailed to over 700 educators in career and technical education programs and agriculture programs in Pennsylvania. This letter described the Institute, its goals and objectives, location, time, and registration information. In May another announcement was placed in the Ag Briefs newsletter. In early June a pre-conference check list was sent to all those who had expressed an interest in the Institute. In early July a reminder letter was sent to all those who had signed up. The Institute was also advertised in the 2002 Governor's Institutes Information bulletin produced by PDE.

### **Collecting the Evaluation Data**

The method used for collecting evaluation data and information for the Institute included four survey instruments and a pre- and post-test, as shown in Table 1. Each objective for the Institute was measured using one or more survey methods, as shown in Table 2.

The *Pre-Test* was given to all participants present after the opening remarks by the Conference Coordinator and the Mayor of Altoona, Pennsylvania, on Monday, July 22, 2002. The *Post-test* was administered to all participants present at the closing session on Thursday, July 25, 2002.

The *Institute Participant Questionnaire* was provided in each Institute notebook and was collected at the end of the week. The *Individual Participant Interview Questionnaire* was used by the evaluation team as individual participants were interviewed during the Institute. The *Business/Industry Representatives Questionnaire* was provided to the site representatives with a stamped envelope to return to the evaluation team after the visit. The *Program Presenter Questionnaire* was given to all program presenters and collected at the Institute.

All responses were entered into the SPSS statistical package and descriptive statistics were generated. Response data are reported in the Findings section of this report.

Table 1  
Methods used for collecting data

Instrument	Administration
Institute Participant Questionnaire	Self-reported
Pre-Test	Given by evaluation team at opening session
Post-Test	Given by evaluation team at closing session
Individual Participant Interview Questionnaire	Evaluation team interviewed over 33% of participants
Business/Industry Representative Questionnaire	Mailed to reps (self-addressed return envelopes)
Program Presenters Questionnaire	Given to presenters, collected at Institute

Table 2  
Survey methods used to meet the objectives of the Institute

Objective	Methodology
1	Information was collected via the <i>Institute Participant Questionnaire</i> .
2	Information/data was obtained through the administration of four separate surveys. These included: a <i>Program Presenters Questionnaire</i> ; a <i>Business/Industry Questionnaire</i> ; an <i>Individual Participant Interview Questionnaire</i> ; and an <i>Institute Participant Questionnaire</i> .
3	A <i>Pre- and Post-Test</i> on key subject matter topics was developed. The test contained 40 identical multiple choice questions and was administered at the beginning of the Institute and again at the end. The questions were selected by the evaluation team from questions submitted by each of the program presenters.
4	The Program Overview and Evaluation Sections of the <i>Institute Participant Questionnaire</i> , the <i>Program Presenters Questionnaire</i> and the <i>Business/Industry Questionnaire</i> were used.
5	Information/data was collected from all Institute participants, including participants, program presenters, sponsoring educational institutions and business/industry representatives, relative to the Institute meeting their needs, expectations, facilities, tours, food, lodging and other arrangements. Suggestions and/or recommendations for future Institute offerings were also collected.
6	Between six and nine months after the conclusion of the Institute, a random sample of Institute participants will be contacted to determine how they are incorporating what they learned at the Institute. This information will be collected via a telephone survey developed for the purpose.

## Findings

### Demographics of Participants

Eighty participants attended this Institute. Over half were agriculture instructors while the rest of the participants represented various fields, such as machine technology, electrical construction, industrial arts, and science. There was representation from the academic fields of math, English and biology with several representing administration. An elementary teacher was even a participant!

Participants attended as individuals and as members of a team from their schools. Thirty eight of the participants were the only person from their school attending the Institute. Thirty eight others were part of a 1 to 5 person team from their schools. Those who came alone formed teams and worked with at least one other participant on the unit outline project.

### Pre-Test/Post-Test (Objective 3)

The Pre- and Post-Test was developed by the evaluation team from questions submitted by each of the program presenters. Questions were submitted that covered material regarding the Pennsylvania academic standards, aligning curriculum to standards, teaching math effectively, teaching reading effectively, and effective teaching and assessment strategies. The summary of the pre- and post-test results show that participants had a 40% gain in their knowledge of teaching reading, a 29% gain in their knowledge of standards, with a 17% and 16% gain in their knowledge of aligning curriculum to standards and teaching math, respectively. (See Table 3)

Table 3  
Summary of Pre-Test and Post-Test Scores for the PA Governor's Institute for Agricultural Sciences and Advanced Manufacturing Careers (N=78)

Section of Test (number of questions)	Pre-Test Score Mean/Percent	Post-Test Score Mean/Percent	Change/Gain +/-
Intro to standards (3)	1.8/61%	2.7/90%	+ 29%*
Seven steps to align Curriculum with Standards (16)	11.3/71	14.0/88	+ 17%*
PA academic standards (7)	4.2/59	6.2/88	+ 29%*
Teaching math (5)	3.8/76	4.6/92	+ 16%*
Teaching reading (9)	4.2/47	7.8/87	+ 40%*
<b>Overall (40)</b>	<b>25.1/62%</b>	<b>35.3/88%</b>	<b>+ 26%*</b>

\*Significant at .001 level based on paired t-test comparison of mean scores

### **Institute Participant Survey (Objectives 1, 2, 4, and 5)**

Overall the conference received very high ratings. Ninety-three percent of the participants found that the Institute to be helpful, accomplished their goals, met their expectations and would recommend others attend. More than three fourths of the participants felt their participation in the Institute increased their knowledge and understanding of standards-based curriculum development.

The majority of participants felt the Institute provided clear goals and expectations on the first day, the materials they were given were helpful, and the Institute provided valuable information and skills they could use in their courses. Based on the skills they learned during the Institute, 93% of the participants felt they would be able to develop standards-based curriculum units or projects for their classrooms next school year. Several participants did indicate that it would take additional time to develop the materials.

The opportunity to brainstorm ideas with colleagues to improve instructional strategies was viewed as a positive component of the Institute by 97% of the participants. The off-site visits were rated effective in meeting Institute goals. In general, participants were able to talk with employees about their work and career preparation, they were able to recognize industry standards, and were able to observe PA academic standards being used.

Some additional comments from participants include:

“Very worthwhile Institute.”

“Good job organizing the conference.”

“This Institute was first class all the way. I was able to get help when needed.”

“Great learning experience.”

“We need to continue to give teachers the time and resources to learn from each other to set standards for the areas we teach.”

“The off-site tours were excellent.”

### **Individual Participant Interview Survey (Objectives 2, 4, and 5)**

Twenty five participants, approximately 33% of the attendees, were individually interviewed by one of the members of the evaluation team. A majority of these participants were teachers at traditional high schools, or comprehensive high schools with technical labs. Interviewees taught a range of students from grades 7 through 12, with most teaching high school. Most were agriculture teachers.

Of those interviewed, all but one had already identified skill standards for their curriculum. They felt that they learned most about the skills to teach reading, writing, and math and about the curriculum alignment process. Eighty four percent of the interviewees were confident they could develop and teach a standards-based unit or project, based on their experiences at the Institute. Most felt that time to develop materials was the critical factor in doing this successfully.

Ninety six percent of the interviewees felt that teaming with academic teachers at their school would strengthen their curriculum. One hundred percent of those interviewed indicated they would begin to look at their curriculum and implement standards-based lessons upon returning from the Institute.

### **Business/Industry Survey (Objectives 2 and 4)**

All five of the industry site visit sponsors completed the survey. They all felt they had been given a clear understanding of the goals of the visit, adequate time, were able to accommodate the size of the group, and would be willing to provide another presentation in the future. They all indicated that they felt it was important for educators to keep close ties with industry needs and that they had a positive experience. Four of the five site sponsors indicated they had mentioned the occupational, academic, and employability skills needed on the job and the materials and tools used in the work environment. Several had time to share their career training or preparation, the future job outlook in the career, and starting salaries.

### **Program Presenter Survey (Objectives 2 and 4)**

Twelve program presenters completed and returned the program presenter questionnaires. All of them indicated they would consider providing another presentation in the future and felt it was a positive experience. All but one presenter indicated they had adequate time to present their information and felt the Institute provided participants with enough skills to develop standards-based units or projects.

### **Conclusions**

Overall the Pennsylvania Governor's Institute for Agricultural Sciences and Advanced Manufacturing Careers was an overwhelming success. Participants were satisfied with their experience, learned valuable and usable skills, and wanted to attend again in the future. This Institute has provided the needed foundation to develop standards-based units and projects. Through the work of the participants, 32 sample unit outlines were written. These unit outlines will be posted on the Internet on the Workforce Education and Development web site so all participants can have copies of all the units developed (<http://voc.ed.psu.edu>). The conference planning team should be applauded for their organization of a rigorous and thorough agenda that provided participants a wealth of information while keeping them interested and engaged.

### **Recommendations for Future Institutes**

These recommendations come from a variety of sources: participant's comments, the steering committee and the evaluation team.

- There should be more opportunity to talk to individuals from industry about required skills in a quiet atmosphere so that a discussion could take place. It was good to see the industry sites but it was not always possible to ask the guides the type of questions that would elicit useful classroom information and ideas.
- More information/presentations about future trends would have been inspiring.
- Better access to a computer lab would have been helpful.
- More down time for informal networking would be nice.

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### ***And finally...***

*"This has been an excellent Institute.  
I wish more of the faculty from my school could have attended!"*