

2008

State Supervisor Report

Status of Technology Education within the United States

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Purpose and Overview:

During the months of February and March of 2008, we conducted a survey of state supervisors of *Technology Education. Our goal was to develop an understanding – however limited – of the state of Technology Education within the United States. Forty-one state supervisors completed the survey. We sincerely appreciate the support, time and effort of the participating supervisors. The survey consisted of nine major sections:

- Leadership
- Program
- Facilities
- Curriculum
- Major Initiatives
- The Future
- ITEA
- Concerns
- Suggestions

We are confident that those in our field will find the information within this report interesting and of value. You will find student enrollment numbers, the number of states receiving Perkins funds, the broad degree of various program names, the number of states involved in pre-engineering programs and initiatives, participation in student and professional organizations, and the state of our facilities among others. Also included is state supervisors' contact information.

Limitations

Please do keep in mind as you read this information that not all respondents answered all the questions or were able to provide all the requested data. The breadth of this report may be its strength, but admittedly, it lacks the desired depth we would prefer and much of the information from some states (such as students served) is incomplete or absent. Never the less, we feel that the report does imply clear patterns and trends, and the sense of a dynamic, valued program in transition.

Findings of Interest

We purposefully have avoided offering opinions or conclusions, leaving this to the readers of the report. However there are some general comments that can be made concerning the collected data. Below are a few points we found of particular interest:

- 76 % of the programs receive Perkins Funds
- Approximately 48 % of the programs are termed Technology Education
- 81% of the programs are aligned/structured or planning to align/restructure with the State's Career Clusters Project
- 84% of the programs include PLTW (Project Lead the Way) courses
- 76% rated TSA (Technology Student Association) as the most valued student organization
- 25% of the facilities are described as state-of-the-art
- 10% of the states require a technology education course(s) for high school graduation
- 46% of the programs include automotive courses
- 88% of the supervisors would support the development of a national curriculum (conditioned upon voluntary participation)
- 70% of the supervisors envision serving a greater proportion of the student population in the future
- 92% of the supervisors predict that technology education will grow in prestige
- 87% of the supervisors are somewhat or very optimistic regarding the future of technology education
- 72% of the supervisors are members of the ITEA (International Technology Education Association)

Closing

It is our hope that the information contained within this report will help develop a deeper understanding of Technology Education in the United States and that this deeper understanding will in turn help make the decisions we make more powerful and productive. Finally, we would like to again thank all the supervisors who participated in making this report possible.

Please contact us if you have any questions or concerns.

Thank you,

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*For the purposes of this report, the term Technology Education should be read as encompassing the following areas (Technology Education, Engineering and Technology Education, Industrial Technology Education, Industrial Arts Education, and STEM (Science, Technology, Engineering, and Mathematics) Education.

Table 1: We have the following number of total students served per year (approximately)

| <i>State</i> | <i>Total Students Served</i> |
|--------------|------------------------------|
| <i>AL</i> | 19886 |
| <i>AR</i> | 2847 |
| <i>AZ</i> | - |
| <i>CT</i> | 54000 |
| <i>DE</i> | 11000 |
| <i>FL</i> | 120000 |
| <i>GA</i> | 202000 |
| <i>IA</i> | 0 |
| <i>ID</i> | 13,450 |
| <i>IL</i> | 194483 |
| <i>IN</i> | 98000 |
| <i>KS</i> | 120000 |
| <i>KY</i> | 18000 |
| <i>LA</i> | - |
| <i>MD</i> | - |
| <i>ME</i> | - |
| <i>MI</i> | 0 |
| <i>MN</i> | - |
| <i>MO</i> | 72457 |
| <i>MS</i> | 950 |
| <i>NC</i> | 80000 |
| <i>ND</i> | 6000 |
| <i>NH</i> | 52000 |
| <i>NJ</i> | - |
| <i>NM</i> | - |
| <i>NV</i> | - |
| <i>OH</i> | - |
| <i>OK</i> | 34400 |
| <i>OR</i> | 47055 |
| <i>PA</i> | 1821383 |
| <i>RI</i> | - |
| <i>SC</i> | - |
| <i>SD</i> | - |
| <i>TN</i> | 102315 |
| <i>TX</i> | - |
| <i>UT</i> | 57800 |
| <i>VA</i> | 566,754 |
| <i>VT</i> | - |
| <i>WA</i> | 2500 |
| <i>WI</i> | 75000 |
| <i>WV</i> | 40000 |

Table 2: We have the following number of licensed TE/Industrial Technology/STEM teachers (approximately)

| <i>State</i> | <i>Total Number of Licensed Teachers</i> |
|--------------|--|
| <i>AL</i> | - |
| <i>AR</i> | 90 |
| <i>AZ</i> | - |
| <i>CT</i> | 650 |
| <i>DE</i> | 81 |
| <i>FL</i> | 2500 |
| <i>GA</i> | 610 |
| <i>IA</i> | 0 |
| <i>ID</i> | 81 |
| <i>IL</i> | 1762 |
| <i>IN</i> | 1142 |
| <i>KS</i> | 1015 |
| <i>KY</i> | - |
| <i>LA</i> | - |
| <i>MD</i> | 1125 |
| <i>ME</i> | - |
| <i>MI</i> | 0 |
| <i>MN</i> | - |
| <i>MO</i> | 704 |
| <i>MS</i> | - |
| <i>NC</i> | 800 |
| <i>ND</i> | 125 |
| <i>NH</i> | 125 |
| <i>NJ</i> | 1371 |
| <i>NM</i> | - |
| <i>NV</i> | - |
| <i>OH</i> | - |
| <i>OK</i> | 310 |
| <i>OR</i> | - |
| <i>PA</i> | 1791 |
| <i>RI</i> | - |
| <i>SC</i> | - |
| <i>SD</i> | 60 |
| <i>TN</i> | 309 |
| <i>TX</i> | - |
| <i>UT</i> | 0 |
| <i>VA</i> | - |
| <i>VT</i> | - |
| <i>WA</i> | 156 |
| <i>WI</i> | 1400 |
| <i>WV</i> | 172 |

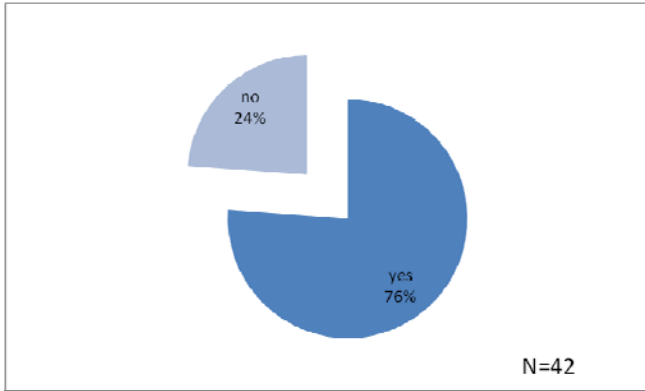


Figure 1. We receive Perkins Funds to support our program.

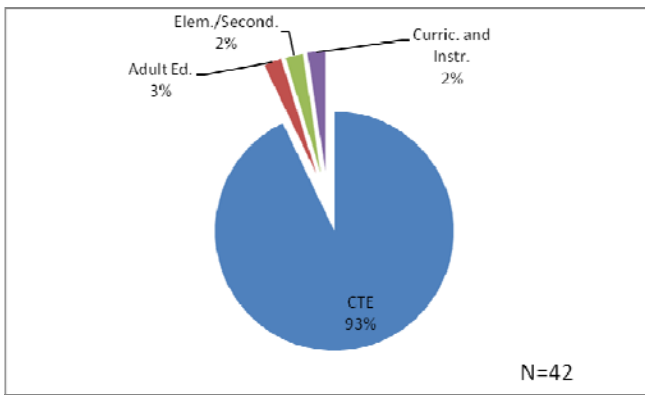


Figure 2. Within the State Department of Education, our program is part of:

Table 3. The program is termed:

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|---|------------------|-------------------|
| <i>Technology Education</i> | 19 | 48% |
| <i>Engineering and Technology Education</i> | 7 | 17% |
| <i>Industrial Technology Education</i> | 3 | 7.5% |
| <i>STEM Education</i> | 4 | 10% |
| <i>Skilled and Technical Sciences</i> | 1 | 2.5% |
| <i>Engineering and Tech Systems</i> | 1 | 2.5% |
| <i>CTWEB</i> | 1 | 2.5% |
| <i>Technology and Engineering</i> | 2 | 5% |
| <i>Industrial and Engineering Systems</i> | 1 | 2.5% |
| <i>Technology Education and Industrial Arts</i> | 1 | 2.5% |

Table 4. Our program serves the following grade levels:

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|------------------|------------------|-------------------|
| <i>K-12</i> | 6 | 20% |
| <i>6 or 7-12</i> | 21 | 70% |
| <i>6 or 7-14</i> | 3 | 10% |

Table 5. In the last 5 years, student enrollment has:

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|--------------------------|------------------|-------------------|
| <i>Declined</i> | 12 | 39% |
| <i>Increased</i> | 13 | 42% |
| <i>Remained the same</i> | 6 | 19% |

Table 6. Is your program currently aligned/structured or planning to align/restructure to reflect the States' Career Clusters Project?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 34 | 81% |
| <i>No</i> | 8 | 19% |

Table 7. Does your program include PLTW (Project Lead the Way) courses?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 35 | 84% |
| <i>No</i> | 7 | 16% |

Table 8. Does your program include EbD (Engineering by Design) courses?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 18 | 43% |
| <i>No</i> | 24 | 57% |

Table 9. Does your program include pre-engineering courses other than those of PLTW or EbD?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 22 | 55% |
| <i>No</i> | 20 | 45% |

Table 10. Please list up to three of the most prevalent student organizations, if any, that serve your state program in order of your perceived value (1 being the most valuable).

| <i>Response</i> | <i>Frequency</i> | <i>Rating</i> |
|-----------------------|------------------|---------------|
| <i>TSA</i> | 25 | 1 |
| <i>Skills USA</i> | 7 | 1 |
| <i>FFA</i> | 1 | 1 |
| <i>TSA</i> | 5 | 2 |
| <i>Skills USA</i> | 5 | 2 |
| <i>FCCLA</i> | 2 | 2 |
| <i>F-1</i> | 2 | 2 |
| <i>First Robotics</i> | 1 | 2 |
| <i>Best Robotics</i> | 1 | 2 |
| <i>TSA</i> | 1 | 3 |
| <i>Skills USA</i> | 2 | 3 |
| <i>MESA</i> | 1 | 3 |
| <i>HOSA</i> | 1 | 3 |
| <i>FBLA</i> | 1 | 3 |
| <i>Best Robotics</i> | 1 | 3 |
| <i>NALT Engineers</i> | 1 | 3 |
| <i>TECA</i> | 1 | 3 |

Table 11. On average, which comes closest to describing your program facilities?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|--|------------------|-------------------|
| <i>Traditional facilities with separate shop and design/classroom areas</i> | 30 | 75% |
| <i>Contemporary state-of-the-art facilities with separate design/classroom and modeling/shop areas</i> | 10 | 25% |

Table 12. The Frameworks/standards used in our state program were developed by: (note all that apply)

| <i>Response</i> | <i>Frequency</i> |
|---|------------------|
| <i>LEAs (local education agency/school systems)</i> | 17 |
| <i>The State</i> | 35 |
| <i>The Technology for All Americans Project (STL)</i> | 18 |
| <i>PLTW</i> | 14 |
| <i>Commercial Vendor(s)</i> | 4 |

Table 13. The curriculum used in our state program is designed by the: (note all that apply)

| <i>Response</i> | <i>Frequency</i> |
|---|------------------|
| <i>LEAs (local education agency/school systems)</i> | 29 |
| <i>The State</i> | 18 |
| <i>ITEA (CATTS)</i> | 18 |
| <i>PLTW</i> | 22 |
| <i>Commercial Vendor(s)</i> | 16 |

Table 14. Curriculum assessments in our state program are designed by the: (note all that apply)

| <i>Response</i> | <i>Frequency</i> |
|---|------------------|
| <i>LEAs (local education agency/school systems)</i> | 28 |
| <i>The State</i> | 18 |
| <i>ITEA (CATTS)</i> | 10 |
| <i>PLTW</i> | 21 |
| <i>Commercial Vendor(s)</i> | 10 |

Table 15. Are any of the courses within your program required by all students for high school graduation?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 4 | 10% |
| <i>No</i> | 34 | 90% |

Table 16. Does your program include carpentry courses?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 18 | 47% |
| <i>No</i> | 20 | 53% |

Table 17. Does your program include cabinetmaking courses?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 13 | 36% |
| <i>No</i> | 23 | 64% |

Table 18. Does your program include masonry courses?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 8 | 24% |
| <i>No</i> | 26 | 76% |

Table 19. Does your program include automotive courses?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 17 | 46% |
| <i>No</i> | 20 | 54% |

Table 20. Would you support the development of a national curriculum (to include summative assessment) that your state would NOT be required to use?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 29 | 88% |
| <i>No</i> | 4 | 12% |

Table 21. Please select one of the following that best represents 10 Years from now.

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|--|------------------|-------------------|
| <i>Our program will serve a greater percentage of the student population.</i> | 28 | 70% |
| <i>Our program will serve about the same percentage of the student population</i> | 8 | 20% |
| <i>Our program will serve a much smaller percentage of the student population.</i> | 4 | 10% |

Table 22. Ten years from now our program will have grown in prestige?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 36 | 92% |
| <i>No</i> | 3 | 8% |

Table 23. Which statement best describes your feeling regarding your program's future?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|----------------------------------|------------------|-------------------|
| <i>I am not sure</i> | 2 | 4% |
| <i>I am very pessimistic</i> | 1 | 2% |
| <i>I am somewhat pessimistic</i> | 3 | 7% |
| <i>I am somewhat optimistic</i> | 18 | 45% |
| <i>I am very optimistic</i> | 17 | 42% |

Table 24. Are you a member of the ITEA (International Technology Education Association)?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 28 | 72% |
| <i>No</i> | 11 | 28% |

Table 25. Are you a member of the ITEA Council for Supervisors (ITEA-CS)?

| <i>Response</i> | <i>Frequency</i> | <i>Proportion</i> |
|-----------------|------------------|-------------------|
| <i>Yes</i> | 18 | 49% |
| <i>No</i> | 19 | 51% |

Additional Reports: Massachusetts

Massachusetts approaches Technology and Engineering Education from three distinct perspectives, described below. While these three perspectives overlap, each has a distinct role in the educational system. All together, the programs comprise an important element of our approach to STEM education for the state.

Career/Vocational Technical Education

Career/Vocational Technical Education in Massachusetts is actually composed of two distinct but related programs:

- Career and Technical Education (CTE) Programs - Those programs that meet the definition of career and technical education contained in Perkins IV.
- Vocational Technical Education (VTE) Programs - Those programs that meet the definition of vocational technical education contained in Chapter 74 of the Massachusetts General Laws, and are approved by the Department of Education pursuant to Chapter 74 and the Vocational Technical Education Regulations. Note that all Chapter 74-approved vocational technical education programs meet the Perkins IV definition of career and technical education and therefore, they may also be known as career and technical education (CTE) programs.

These programs use the Vocational Technical Education Frameworks to guide program design and implementation. Each Framework fits within a Career Cluster, contains six common strands in which learning standards are categorized, and focuses on technical skill development.

Technology Education

Technology Education programs are organized by individual schools or districts. Technology Education offerings are generally provided as electives and are more exploratory in nature than Vocational programs, but also have a technical focus. The Massachusetts Department of Education has not set learning standards for these courses.

Core Academic Technology/Engineering

Technology/engineering as a core academic subject has its basis in state legislation that created the academic standards and accountability system. Technology/engineering is a core academic science subject, equivalent to biology, chemistry, physics, and earth and space science. Core academic standards for technology/engineering have an academic focus and reflect the content and organization of the Association for the Advancement of Science (AAAS) *Benchmarks for Science Literacy* and the International Technology Education Association (ITEA) *Standards for Technological Literacy*. Standards for this subject are articulated in the *Massachusetts Science and Technology/Engineering Framework*, and assessed at grades 5, 8, and as one of four end-of-course science test options at high school.

State Supervisors Contact Information (February 2008):

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