



USING FUTUREFORCE NEBRASKA TO SHAPE MANUFACTURING CURRICULUM

By Tony Glenn

Nebraska, like most states in the nation, is facing a critical shortage of skilled and employable workers. Business and industry want to grow in Nebraska and realize the road to ensuring success is a workforce possessing updated knowledge and skills that support the use of new technologies, as well as a necessary work ethic to be a dependable and effective employee.

FutureForce Nebraska was developed to support an idea in which several entities, working together, could assist the growth of economic development of the state. In May 2004, the idea crystallized at a seminar sponsored by the National Governors' Association, the Coordinating Commission for Postsecondary Education and several state agencies, including higher education institutions. A realization that state agencies, two- and four-year educational institutions, and business and industry need to partner and support the identification of targeted growth industries and work together to solve the workforce needs became what is now known as FutureForce Nebraska.

The departments of education, economic development, labor workforce development, and health and human services teamed up with two- and four-year postsecondary institutions, labor unions, and business and industry leaders in targeting growth "pathways" for

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Students at Nebraska's Norris High School participate in activities that include a mechatronics workshop.

the state. The priority areas were health care; manufacturing; entrepreneurship; biotechnology; and transportation, distribution, warehousing and logistics. Additional areas have started the process of pathway development in construction and finance. The work of the partnerships assisted in creating awareness and aligning the segments of the pathway as an effort to create a coordinated process for future and current employees.

During the process, the reinforcement of the age-old idea surfaced in the manufacturing pathway that business and industry partners from FutureForce Nebraska were a key resource when revising curriculum in the public schools. Rather than adopting a usual practice of “educators telling educators” what should be included in the curriculum, educators had the opportunity to have the conversation with business and industry leaders about what the industry needs are and how the expectations might be met. A realization that the manufacturing curriculum should focus on contextual academics, technical skills based on national standards and employability skills, as well as safety education and practice, occurred.

Contextual Academics

When talking about needs, employers mentioned the difficulty in finding entry-level workers possessing the academic base needed to be successful. The statement, “If I could only find a worker who can add, subtract, multiply and divide fractions,” was often heard.

To address this problem, a focus by educators emerged to address the academic skills performance issue. Teaching and reinforcing the skills in the context that the student may use in a career proves to be an effective practice. The bottom line is that all teachers, including career education instructors, need to re-examine how academics are delivered and supported within the entire educational process for the student.

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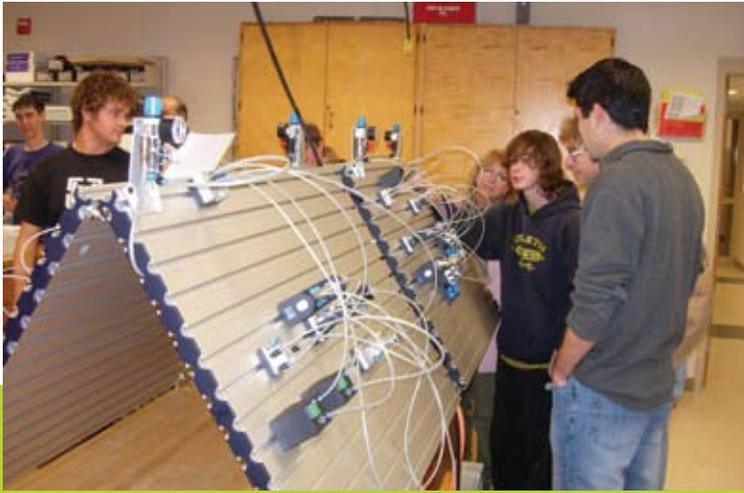
One employer expressed this concern by explaining that, “In the 1980s, business and industry asked for more academics. Education responded by providing more academics. What we should have asked for is *better* academics.”

Students need to know how and why the academic content is used in order to have it make sense. Teaching contextually means teaching the “how and why” of the process and serves as the foundation for developing the technical skills of the 21st century.

Technical Skills Based on National Standards

Teaching and perfecting a set of skills was emphasized as a noble and honorable task by the group engaged through FutureForce Nebraska. An effort to emphasize the skills needed was developed on the basis of industry and not just what the teacher wanted or preferred to teach. National industry standards exist and were often cited as an excellent source of information when revising the curriculum. The SkillsUSA Technical Standards became particularly helpful, because they are written by a team of national business and industry leaders and are updated every three years.

The technical standards became the basis for the



In Nebraska, students such as these at Norris High School are learning skills that are needed in the manufacturing industry.

development of technical skills checklists for welding, precision machining, and mechatronics. These checklists were then shared with instructors at the postsecondary community college level and were recognized as an excellent tool to “individualize” the tech prep process and support the seamless transition between levels of education.

Using the checklists, high school instructors are able to design a curriculum, track the progress of the student, identify the skills that the student has accomplished, and then provide the checklist for use by the postsecondary institution. The checklist allows the postsecondary instructor to assess the skill sets the student already possesses and identify the skills still necessary for development. Using the checklists, students can build their portfolios based on skills rather than “seat time” in a class—supporting the employability skill development.

Employability Skills

Business and industry representatives also supported the SkillsUSA curriculum as a tool to teach employability skills, often referred to as soft skills.

The SkillsUSA Professional Development Program (PDP), like the technical standards, is written by business and industry in collaboration with educators. The PDP curriculum is very flexible to use and supports a variety of methods to implement. Whether used as an integral component of the daily curriculum, a Friday activity, or an activity for the substitute teacher to use, the PDP provides a structure for actually teaching the employability skills.

A nominal fee, per student, exists to support the PDP program, but industry leaders agree that students must learn that employers have expectations in jobs that employees must understand in order to be productive and safe.

Safety Education and Practice

Industry leaders in the FutureForce Nebraska project agree that safety is an attitude that must be emphasized from the beginning of the manufacturing education experiences and continue throughout a career. The process is not simply taught as a unit and then put on the “back burner,” but rather must permeate throughout the educational experience.

Several good safety programs exist, but one curriculum tool that appeals to many involved is the CareerSafe® online safety program. A feature of the program that attracted the interest of students, teachers and employers is an OSHA Blue Card certification upon completion. Like the PDP, there is a nominal cost per student for the CareerSafe program, but the marketability and impact is tremendous.

The vision of FutureForce Nebraska is to ensure a workforce prepared to meet the needs of business and industry in economic development-targeted industries—allowing Nebraska’s economy to thrive and attract citizens who are productive, committed and fulfilled. Moving toward the vision has afforded tremendous partnerships, multiple resources and an alignment of the manufacturing curriculum in a way that allows schools and students to meet the needs of business and industry for the 21st century. **I**

For Further Exploration

For more information about the curriculum and instruction in Nebraska in the industrial, manufacturing and engineering career field, visit www.nde.state.ne.us/TEAM/index.htm.

For more information about the SkillsUSA Professional Development Program and the CareerSafe program, visit www.skillsusa.org.