Preparing a Globally Competent Workforce Through High-Quality Career and Technical Education
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Asia Society and Longview Foundation produced this report in partnership with Wanda Monthey; National Association of State Directors of Career Technical Education Consortium; and Association for Career and Technical Education.

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This report builds and expands on the findings of The Promise of High Quality Career and Technical Education: Improving Outcomes for Students, Firms, and the Economy paper, published in October 2013 by The College Board.

About:
Asia Society is the leading educational organization dedicated to promoting mutual understanding and strengthening partnerships among peoples, leaders, and institutions of Asia and the United States in a global context. Across the fields of arts, business, culture, education, and policy, the Society provides insight, generates ideas, and promotes collaboration to address present challenges and create a shared future.

The Longview Foundation seeks to build a more peaceful, just, and sustainable world by equipping youth with a global perspective and understanding of political, social, and environmental issues worldwide.

The National Association of State Directors of Career Technical Education Consortium was established in 1920 to represent the state and territory heads of secondary post-secondary an adult career technical education across the nation. Its mission is to support visionary state leadership, cultivate best practices and speak with a collective voice on national policy to promote academic and technical excellence that ensures a career-ready workforce.

The Association for Career and Technical Education is the largest national education association dedicated to the advancement of education that prepares youth and adults for careers. It's our mission is to provide educational leadership in developing a competitive workforce.

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Our Current Challenge

Rapid economic, technological, and social changes are creating a world that is ever more interconnected. One in ten Americans is foreign born, and local communities—urban, suburban, and rural—are growing more diverse. To take advantage of global market opportunities, companies must hire workers with global competence—that is, the capacity and disposition to understand and act on issues of global significance. U.S. educators face a critical new imperative: to prepare all students for work and civic roles in an environment where success increasingly requires the ability to compete, connect, and cooperate on an international scale.

One promising way in which students can learn about and apply global competencies is through Career and Technical Education (CTE). With an anchor in preparing students for the careers of their choice and a focus on the critical academic, technical, and employability skills needed for success, CTE offers a natural platform on which to build global competencies. Globally minded CTE programs can provide the rigorous and authentic setting necessary to prepare students for the competitive world economy, while offering a more engaging, motivating, and relevant education experience.

CTE programs that offer opportunities for students to become more globally competent will create adults prepared to function in an interconnected society and workplace. For one, they help strengthen students’ readiness for the global economy, allowing them to understand and navigate global markets and cultures. They can also help change people’s perceptions of what CTE has to offer, particularly those who think CTE does not connect to ‘academic’ education and does not allow students to understand international concepts, speak additional languages, or work in teams with people from different cultures.

**Global STEM Classroom, Massachusetts**

For seven years, the Global STEM Education Center has connected classrooms in Massachusetts with classrooms around the world. These are not superficial connections, however: Students together with their international partners conceptualize, design, and complete in-depth research and hands-on projects. For instance, seventh-grade students at Spirit of Knowledge High School worked with a high school in the United Kingdom, Haywood Engineering College, to design blades for an efficient wind turbine. Co-taught by the classroom teachers in Massachusetts and the United Kingdom, and assisted by a volunteer professor from Worcester Polytechnic Institute, students learned principles of engineering, physics, mechanics, and chemistry, which they applied in designing the turbine parts. The students used professional engineering software to design the models, which were sent to the U.K. school and printed on a 3D printer. The prototypes were shipped to the United States, where the students tested them and presented the final product at the annual International Society for Technology in Education (ISTE) conference. The benefits to students included learning key twenty-first-century skills and total engagement in their projects. One student went from failing algebra to understanding fluid dynamics and presenting the project with confidence to a room full of 600 ISTE participants.

In another example, Blackstone Valley Regional Vocational Technical High School decided to offer the Global STEM Classroom program to their electrical, plumbing, and culinary students, an unusual decision. However, the results are showing that the students emerge confident and better able to communicate and work with others—skills that will help them get good co-op placements and work directly with future customers, whether they share the same culture or not.

While the integration of global content into K-12 schools and courses is still emerging, there are bright spots, including some CTE programs already making connections between their local and the greater global economy. This paper offers insight into how educators can embed global competency into their CTE classrooms and how this effort can be incentivized by defining the need for global competency and sharing case studies of globally minded CTE programs.

This paper builds upon and responds to global competence integration efforts such as those spelled out in NASDCTEc’s Career Ready Practices. This paper also addresses and expands on current professional development in CTE and provides practical examples for the field on an important topic inextricably linked to the health of our nation’s economy.

DEFINING GLOBAL COMPETENCE
According to a definition written by Asia Society and the Council of Chief State School Officers, which was then later officially adopted by the U.S. Department of Education, the four pillars of global competence include:

- **Investigate the World.** Global competence starts by being interested in learning about the world and how it works. Students ask and explore questions that are globally significant. They can respond to these questions by identifying, collecting, and analyzing credible information from a variety of local, national, and international sources, including those in multiple languages. They can connect the local to the global.

- **Weigh Perspectives.** Globally competent students recognize that they have a particular perspective, and that others may or may not share it. When needed, they can compare and contrast their perspective with others, and integrate various viewpoints to construct a new one.

- **Communicate Ideas.** Globally competent students understand that audiences differ on the basis of culture, geography, faith, ideology, wealth, and other factors. They can effectively communicate, verbally and nonverbally, with wide-ranging audiences and collaborate on diverse teams. Because it is increasingly the world’s common language for commerce and communication, globally competent students are proficient in English as well as in at least one other world language. They are technology and media literate within a global communications environment.

- **Take Action.** Globally competent students see themselves as capable of making a difference. Alone or with others, ethically and creatively, globally competent students can envision and weigh options for action based on evidence and insight; they can assess their potential impact, taking into account varied perspectives and potential consequences for others; and they show courage to act and reflect on their actions.

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The Case for Global Education

Business: Learning Logistics in Kentucky—Solving Real-World Challenges in a Simulated Environment

Amazing Global Marketplace (AGM) is a business program in Jefferson County, Kentucky, that inspires and prepares students to become actively involved in the global marketplace by allowing them to participate in simulated international business practices. AGM’s vision is to build an educated, globally intelligent, regional workforce by preparing students for careers at existing multinational companies in the area and drawing more investment into the community.

AGM uses more than 100 volunteers from mentor companies including Yum! Brands, Papa John’s, Mercer, and CafePress, as well as international people within the community at large. The model combines experiences outside of the classroom with lesson plans delivered by teachers around topics including market research, global supply chain, contracts, business meetings, and negotiation. During the Global Marketplace Simulation, students practice and demonstrate cultural norms and international business etiquette—this is where the international business transactions they have been studying come to life. In addition to simulated international business travel, a tradeshow activity has students represent their mentor companies and engage visitors (other students and VIPs) with elevator speeches as if they were at a real tradeshow.

Below represents just a few examples of the global business skills these students may employ without ever leaving the United States:

- Political, environmental, and societal impact on pricing and timing of supply chains
- Comfort with working with people of different cultures
- Analytical skills to understand trade agreements
- Conversion of currencies and metric units on domestic products

These foreign markets will further benefit the American economy—2.2 U.S. jobs exist for every job at a foreign affiliate. The demand for global competencies reflects increasing opportunities for international collaboration within and across companies.

As such, it comes as no surprise that employers are well aware of the value of global and cultural competencies to their bottom line and are increasingly citing it as a priority. Consider these facts:

- Eighty percent of 800 U.S. executives agree that their businesses would increase if staff had international experience. Importantly, the majority of companies, whether large, mid-size, or small, believe that international skills are required at both the management and entry levels.
• An Association of American Colleges and Universities study found that 97 percent of business executives identified intercultural skills, or being “comfortable working with colleagues, customers, and/or clients from diverse cultural backgrounds,” as important, including 63 percent who believe these skills are very important. And 91 percent agree “all students should have educational experiences that teach them how to solve problems with people whose views are different from their own.”

• In a survey of 400 employers, the majority identified “diversity” and “teamwork/collaboration” as important applied skills but rated the preparation of high school students as “adequate” (versus “excellent” or “deficient”).

• A study on soft skills conducted in 367 companies in nine countries by the British Council, IPSOS Public Affairs, and Booz|Allen| Hamilton found that employers increasingly need employees who “are not only technically proficient but also culturally astute and able to thrive in a global work environment.” The study also identified the ability to understand different cultural contexts and viewpoints, respect for others, and knowledge of a foreign language as key skills that employers are using and will continue to use to evaluate and retain employees. It is also these soft skills that employers seek when hiring, as they know they can train employees with the hard skills necessary for their specific occupations.

Health Sciences: High Line School District, Washington

The impact of health and well-being in the global environment is at the forefront of many people’s minds. Locally, health care workers must be able to work within the growing diversity of our communities. Businesses want employees who understand the impact of cultures, and political, economic, and legal systems, on the global economy and health care. It is important to understand how the involvement of international organizations impacts global infrastructures.

Health Sciences and Human Services High School in the High Line School District, Washington, realizes this importance and requires a semester of Global Health for freshmen. The teacher, Jordyn Wilson, uses a project-based learning approach to cover topics such as communicable and non-communicable disease, policies of the World Health Organization, major global health problems, awareness of and advocacy for issues, and debate of health interventions.

Students are given case studies and real-world problems, and work together to evaluate the case, solve problems, and advocate for many issues. They then present to classmates before honing their work to present to other classes. This helps students understand the wide array of careers available to them and shifts their thinking. According to Jordyn, “Global Health really opens up the students’ minds to what is going on in health not only in our community, but around the world. It is difficult for them to shift their thinking away from themselves and toward others, but they now think of health in a new way.”

Jordyn uses the WHO and CDC websites and relies upon additional resources such as Rx for Survival from PBS. Second semester, students take Health Careers and explore the many different occupations in the field. Global doesn’t end freshman year—seniors have the opportunity to more deeply connect with a global health topic in their capstone course experience. Coursework like this, designed to connect students through research, projects, and presentations, is one way global can be integrated to support CTE curriculum goals.

Below represent just a few examples of global health skills these students may employ without ever leaving U.S. borders:

• Language and cultural facility in working with patients from other cultures
• Impact of global health issues and policies on the public
• Understanding the impact of culture on health and policy development and health care delivery systems
Finally, in making global-local connections, learning at least one additional language is a crucial element of global competence. Employers are increasingly identifying the ability to understand another language and culture as an important workplace skill. An analysis of 14.6 million job postings found bi-or multi-lingualism to be not only one of the top twenty skills required for high-growth/high-wage occupations, but also one of the top eight skills required for all occupations. In addition, 63 percent of employers rated knowledge of foreign languages as increasingly important for high school and college graduates—“more so than for any other basic knowledge area or skill.”

Considering the reach of the global economy and the economic realities of markets and growth—and the increased demand from the business community—it is critical that global competency be integrated into education, including the CTE system with its goal of preparing students for the twenty-first-century economy.
Manufacturing: Sherwood High School, Oregon

It is the rare business, if any, that creates all its product components. The international supply chain exists everywhere. Laws are not the same around the world and what is permissible in another country may not be in the United States. Understanding the complexity of the global market and the impact of different components is important for success in all career areas. There are many resources from international organizations and businesses to support this learning.

To prepare his students for the interconnected marketplace, John Niebergall from Sherwood High School in Sherwood, Oregon, has developed an activity where students simulate global manufacturing by creating components to a product in geographically distributed locations and then shipping those final parts to a single school for final assembly and testing. Students are introduced to this idea through an initial activity where they look at the global sourcing of their clothes, cell phones, backpacks, anything they have with them in the classroom. They then learn about the global production lines of Boeing, a company where pieces are created in Indonesia and Ireland and then sent to Washington for assembly. Industry leaders come into the classroom to reinforce this lesson by sharing their experiences of working in an international setting.

The first time John did this project, students worked with a domestic school in Sitka, Alaska. Students in Sitka designed a set of gears and sent the designs to Sherwood High School, where they were manufactured and then sent back to Alaska for assembly. The project is now spreading to other schools across the Pacific Northwest. John would like to create partnerships with schools around the world to further extend the work and the global experience.

Projects like this can assist students in developing a deep understanding of important global skills such as the following:

- The difference between domestic and international businesses through partnerships with classrooms in other countries (Business could help establish such partnerships through its relationships with schools abroad.)
- The local economic base, trading partners, and the impact of the international supply chain
- The political and legal requirements and issues impacting international trade
- Human resources and labor issues
- International communications and etiquette

Asia Society’s International Studies Schools Network (ISSN), a national network of secondary schools in low-income and minority areas with the mission of developing globally competent graduates, is showing that in comparison to schools with similar demographic profiles in the same districts, ISSN schools have higher test scores. Early evaluation results in an ISSN school with a high percentage of low-income and minority students show that integrating global competence across the curriculum is a significant positive predictor of achievement outcomes and motivation-related outcomes in several regression models.\(^{\text{xiii}}\) ISSN schools realize the opportunity to make instruction more effective by infusing global perspectives into the curriculum and school culture; a similar approach can be taken in more classrooms, including those in CTE.

Similar to schools in the ISSN, students who complete CTE programs graduate at higher levels than the general population, are eight to ten times less likely to drop out of high school, and studies consistently show graduation rates for these students at 90 percent or higher. More than 75 percent of these students pursued postsecondary education and 80 percent of those students had earned a credential or were still enrolled two years later.\(^{\text{xiii}}\)
While many CTE educators acknowledge the importance of instruction in global competence, many classrooms across the country do not include such formal instruction. In many places school schedules and/or state graduation requirements pit foreign language courses against CTE courses and other electives instead of integrating them both into student schedules. Asia Society and Longview Foundation have worked for decades in the field to provide start-up funds and technical assistance to states, districts, and schools interested in adding a global perspective to their classrooms. The College Board has also worked in international education for many years. Now is the time to work together with national partners to effect wide-scale change.

**A County Approach: Bergen County Academies, New Jersey**

*Bergen County Academies*, a public, county-wide magnet technical school located in Hackensack, New Jersey, and one of the top high schools in the United States, is instilling in students the importance of cultural understanding through international travel, speaking a world language, and working on international research projects.

Students may attend one of seven academies and major in Science and Technology; Business and Finance; Culinary Arts and Hotel Administration; Engineering and Design Technology; Medical Science Technology; Telecommunications and Computer Science; or Visual and Performing Arts at this education reform model school in which international content and perspective is integrated across all grade levels, core subject areas, and elective courses. One hundred percent of students are required to take at least three years of study in the same core language of French, Spanish, or Mandarin Chinese. Ninety-seven percent of the student population continues to take a fourth year of world language study.

In 2006, a Fulbright grant led to an exchange with Japan. While there, BCA administrators and teachers formed a sister school partnership with one of Japan’s Super Science high schools, Kokutaiji Senior High School. Students initially participated in a joint research project investigating the differences between the mitochondrial DNA of the Japanese Giant Salamander and the Eastern Hellbender of the United States. This culminated with students traveling to Japan to present their research.

In 2010, BCA began participating in the Mission to Mars challenge created by NASA astronaut Dr. Charles Camarda. Students were asked to work on ways to travel to Mars. They decided to again join forces with Kokutaiji and together successfully launched a high altitude balloon into space to measure pressure, temperature, and radiation. Bergen students again traveled to Japan to present their findings to more than 2,000 students from Hiroshima prefecture. The collaboration is ongoing, with students planning to capture and harvest an asteroid.

Students in the Business and Finance program have traveled to London, and Visual and Performing Arts students have traveled to Greece. Journalism students partnered with a school in Kenya. Mark Tronicke, Coordinator of Global Education for BCA, hopes to build global programs in each of the seven academies and says that not only do students learn about other cultures and what life is like after graduation, but they are more engaged in their learning. In fact, students are so engaged that they have helped to conceptualize and create new international programs.

While not every school will be able to physically travel with students to other countries, they can provide students with virtual and local work-based opportunities to:

- Use special projects to collaborate with students in other countries or with business to address an international challenge, issue, or market
- Understand communication and etiquette across cultures
- Understand trade requirements and impact of trade on local (domestic and international) communities
- Predict political impact on communications and issues within their career path

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The reality is that CTE prepares students for the full range of careers, as represented by the 16 Career Clusters.\textsuperscript{xiv} CTE still encompasses automotive technology, agriculture, and construction, but also extends to digital media, advanced manufacturing, and global logistics. High-quality CTE programs prepare students for careers—and the postsecondary education and training needed to access such careers—and are responsive to industry needs and expectations. Following are just a few global topics that are relevant to each of the Career Clusters.

<table>
<thead>
<tr>
<th>Career Cluster</th>
<th>Global Topic(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Food &amp; Natural Resources</td>
<td>Addressing the global food crisis; exporting and importing to/from world markets</td>
</tr>
<tr>
<td>Architecture &amp; Construction</td>
<td>Designing for a range of international climates and use of construction materials in different environments (e.g., on a fault line, in a wet climate, in an arid desert), in which international content and perspectives are integrated across all grade levels</td>
</tr>
<tr>
<td>Arts, A/V Technology &amp; Communications</td>
<td>Bringing telecom into developing countries and the associated political, legal, and ethical issues</td>
</tr>
<tr>
<td>Business Management &amp; Administration</td>
<td>Expanding markets; using different currencies; communicating across cultures and time zones</td>
</tr>
<tr>
<td>Education &amp; Training</td>
<td>Educating students to address globally significant matters and their impact on people and the environment; empowering future generations to take action in their cluster area</td>
</tr>
<tr>
<td>Finance</td>
<td>Working with diverse currencies and global finance markets, regulations, protocols, and business etiquette</td>
</tr>
<tr>
<td>Government &amp; Public Administration</td>
<td>Working on diplomatic relations and international military efforts</td>
</tr>
<tr>
<td>Health Science</td>
<td>Tackling global epidemics, disease pathology, and transmissions</td>
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<tr>
<td>Hospitality &amp; Tourism</td>
<td>Mastering additional languages as well as having comfort and familiarity with managing diverse guests and staff</td>
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<tr>
<td>Human Services</td>
<td>Working with diversity in U.S. populations</td>
</tr>
<tr>
<td>Information Technology</td>
<td>Addressing cybersecurity as well as international legal and trade issues</td>
</tr>
<tr>
<td>Law, Public Safety, Corrections &amp; Security</td>
<td>Effectively communicating with diverse constituents; understanding legal implications for international markets</td>
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<tr>
<td>Manufacturing</td>
<td>Developing products across borders; using international supply chains</td>
</tr>
<tr>
<td>Marketing</td>
<td>Marketing strategies used for different countries; understanding how culture impacts buying</td>
</tr>
<tr>
<td>Science, Technology, Engineering &amp; Mathematics</td>
<td>Working in international groups to solve pressing global issues; understanding the latest international research and product development</td>
</tr>
<tr>
<td>Transportation, Distribution &amp; Logistics</td>
<td>Transporting and logistics of moving freight in complex transit routes and port mechanisms; understanding the impact of international trade laws</td>
</tr>
</tbody>
</table>

Preparing a Globally Competent Workforce through
High-Quality Career and Technical Education
The integration of global competencies into CTE programs of study is a natural one. CTE students are learning valuable skills related to the program’s industry; and students in the ISSN network, as discussed earlier, are using deeper analytic skills to research and address issues of global significance. Research in both areas demonstrates that engagement in real-world learning on issues of global significance leads to persistence and higher achievement. To combine CTE with the methods and strategies of a globally focused education is a powerful way to engage, motivate, and ultimately ensure that students graduate from high school with the skills needed to succeed in the interconnected environment in which they will be living and working.

Increasing numbers of careers are requiring global competency, facility with world languages and cultures, and the ability to work in global teams. At a fundamental level, CTE’s role is to prepare students for successful careers, and quality CTE programs should provide opportunities for students to learn and apply global competencies in order for students to successfully participate in the American economy.

As demonstrated by the case studies featured in this paper, there are successful practices and programs across the country, representing a range of ways educators and policymakers can integrate CTE and global competency. Some of the effective approaches include:

- Embedding global competencies into lesson plans, assignments, or capstone projects.
- Connecting to the diverse populations in local communities.
- Establishing partnerships with international companies to facilitate speakers and presentations by students to real business audiences.
- Enabling internships and apprenticeships with a global focus.
- Building a partnership with a school or classroom abroad to engage in substantive, technology-based collaborative projects.
- Incorporating world language study as part of a student’s program of study.
- Encouraging and aiding students to study abroad, which takes them out of their comfort zone and is an excellent way to expose them to different cultures.
Agriculture: TriValley High School, New York

Agriculture is another industry that embodies the complex globalization of market economies. Farms with domestic and global crops must contend with environmental and weather impacts from around the world. It is important to understand the complexities of global food production and issues of food safety and security, both at home and abroad.

When Tara Berescik, the ACTE 2013-2014 National Teacher of the Year, began her career as an agriculture educator in upstate New York, she knew she wanted to expose her students to the world. Tara came to TriValley High School with a vision and passion for bringing broader experiences to kids, only to find that other priorities threatened to crowd out her commitment. Initially she began with minor adjustments to units, incorporating global aspects where she could.

She started small, having students examine each ingredient of a cheeseburger and map that ingredient back to the local source. Tara took the project a step further and students map when each component would be in season where they lived and followed this exercise with a dialogue on food sourcing and security issues. As a result, students started an initiative to encourage people in their communities to support local agriculture and reduce their carbon footprint.

The next project was Trout in the Classroom, which led to a connection with elementary students in Ireland who were also raising trout. First virtually, and then through a trip to Ireland, students compared the species they were raising and talked about environmental issues related to clean water and fish populations in their areas.

Since that first trip to Ireland, students at TriValley High have brainstormed trips that would allow them to better understand agricultural practices, pitched their ideas to the school board, created business plans, raised money for travel expenses, and visited four continents. They have observed the entire process and production of growing and selling coffee beans in Central America, conducted service projects, compared animal husbandry practices, and delved into environmental implications for different farming practices through these experiences.

Tara continues to integrate global perspectives into all of her courses using UN resources and others related to environmental issues. This approach is paying off. She finds that her students are more interested in and engaged with real-world topics related to their coursework. Students are continuing on with degrees and careers in international agriculture—using the knowledge and experience gained in high school to understand the wealth of opportunity for varied career paths in the field.

Below represent just a few examples of how global engagement can teach needed agriculture skills to students, as delineated through the Common Career Technical Core:

- Analyze how issues, trends, technologies, and public policies impact systems in the Agriculture, Food & Natural Resources Career Cluster.
- Evaluate the nature and scope of the Agriculture, Food & Natural Resources Career Cluster and the role of agriculture, food, and natural resources (AFNR) in society and the economy.
- Examine and summarize the importance of health, safety, and environmental management systems in AFNR businesses.
- Develop a business plan for an AFNR business. (Make it an international business.)
- Use sales and marketing principles to accomplish AFNR business objectives. (Market to diverse audiences.)
- Develop plans to ensure sustainable production and processing of natural resources (global environmental stability and production).

1http://www.careertech.org/CCTC
Conclusion

Teaching global competency in a career-focused context gives students the opportunity to acquire important skills needed for success in many careers that are part of the current economy. The more effective, sustainable approach is to integrate global themes and content into existing coursework, not a separate global CTE class. The examples included in this publication are intended to provide support for CTE educators as they seek to incorporate global competencies into their own CTE curriculum. This will lead to greater engagement and achievement of students as well as provide a pipeline of workers and lifelong learners who will be able to engage globally and grow the American economy.

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xiv For more, see NASDCTEc, “Career Clusters,” www.careertech.org/career-clusters.