A Look Inside: A Synopsis of CTE Trends

A Four-Part Series Analyzing State CTE Data and Initiatives
Focus: CTE Teacher and Faculty Shortages

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Brought to you by the National Association of State Directors of Career Technical Education (NASDCTEc)

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Overview

Every other year, the National Association of State Directors of Career Technical Education Consortium (NASDCTEc) conducts a survey of the membership to gauge trends in Career Technical Education (CTE) across the country. Based on analyses of this year's survey results from 50 states and territories, and comparisons to surveys administered in 2008 and 2010, NASDCTEc has authored a series of synopsis papers that describe trends in four key areas: Career Clusters™ and Programs of Study; CTE Teacher/Faculty Shortages; Governance; and CTE Funding.[i] This paper, the second in the 2012 series, reports on widespread CTE teacher/faculty shortages and the initiatives that states and programs are taking to draw and keep highly effective CTE teachers in the classroom.

Background

CTE requires highly knowledgeable educators who not only have experience in the field, but also pedagogical skills needed to be successful in the classroom. States consistently report a shortage of qualified CTE teachers and faculty, in part because of barriers to those who want to transition to teaching from business and industry positions. Other barriers, such as the skills gap crisis, have added to the difficulty of finding qualified, available CTE educators. As CTE State Directors continue to focus on implementing high-demand Career Clusters™ in their states, alternative pathways to CTE teacher licensure, such as New Jersey's alternative certification program, will be critical to achieving the desired outcomes.

Key Findings:

1) In 2008, over 70 percent of survey respondents reported a shortage of secondary Science, Technology, Engineering and Mathematics (STEM) teachers in their state; by 2012, that proportion dropped to 46 percent – an indication that schools have been more successful in hiring STEM educators over the last four years.

2) The Career Clusters™ with the highest CTE teacher shortages affecting both secondary and postsecondary education are: Health Science, STEM, and Manufacturing.

Current CTE Teacher Shortage: Secondary

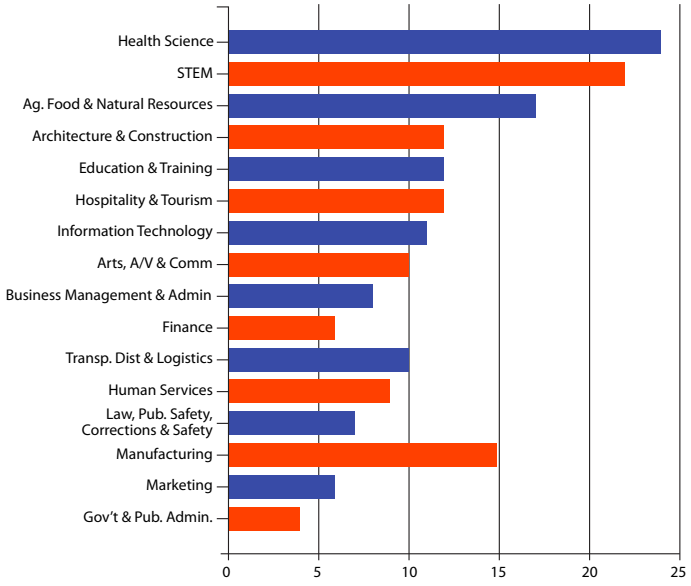
Since the 2008 survey, State Directors have consistently reported a demand for secondary CTE teachers in three areas: Health Science, STEM, and Manufacturing. Labor market projections indicate that the number of jobs in these areas, particularly in Health Science and Manufacturing, will increase substantially by 2018.[ii] CTE teachers within these Career Clusters™ will play an essential role in

"…the demand for STEM educators remains high and states, organizations, and the federal government have embraced initiatives to bring experience STEM educators to the classroom."

preparing today's students for jobs of the future. Thus, fulfilling these shortages requires a rapid response.

Business and education leaders continue to stress the importance of preparing students in STEM subject areas; the shortage of CTE teachers in this area has improved but is still dire since the 2008 survey. In 2008, more than 70 percent of survey respondents reported a shortage of secondary STEM teachers in their state; by 2012, that proportion dropped to 46 percent – an indication that schools have been more successful in hiring STEM educators over the last four years. Despite the drop, the demand for STEM educators remains high and states, organizations, and the federal government have embraced initiatives to bring experienced STEM educators to the classroom.

Percentage of States with Secondary CTE Teacher Shortage by Career Cluster™



"Eighty-eight percent of manufacturing executives report that they are unable to find qualified workers."

As the baby boomer population ages, more healthcare-related jobs are becoming available and students are choosing to focus on careers in Health Science.[iii] Thus, the need for Health Science CTE educators also remains strong. In 2008, more than half of states reported a shortage of secondary CTE Health Science teachers. The proportion of states reporting a shortage dropped to 36 percent in 2010 but has since risen to 50 percent in 2012.

Leaders in manufacturing consistently discuss how the skills gap is hindering their industry. Eighty-eight percent of manufacturing executives report that they are unable to find qualified workers.[iv] With fewer workers available, CTE programs in manufacturing struggle to recruit and retain experts in this area. One-third of State Directors reported a shortage of manufacturing CTE teachers in 2012, a proportion that has remained the same since 2010.

Finally, the 2012 survey showed a surge in demand for CTE teachers in the Agriculture, Food & Natural Resources Career Cluster™, jumping to 35 percent from 23 percent in 2010.

Current CTE Faculty Shortage: Postsecondary

The top three areas of CTE teacher shortage for secondary education since 2008 –

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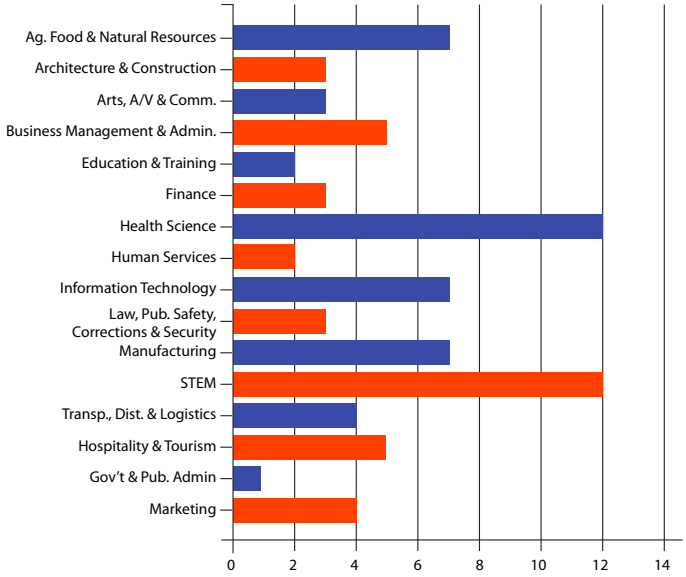
Health Science, STEM, and Manufacturing – are consistent with faculty shortages at the postsecondary level.

In 2010, more than one-quarter of states cited a shortage of postsecondary CTE faculty in Health Science, nearly the same number cited a STEM faculty shortage, and 15 percent of State Directors reported a shortage of CTE faculty in Manufacturing. Shortages in these three areas continue to be evident in the 2012 survey, in addition to considerable CTE faculty shortages in Agriculture, Food & Natural Resources and Information Technology.

Percentage of States with Postsecondary CTE Faculty Shortage by Career Cluster™



As leaders from business and industry struggle with hiring qualified employees, postsecondary institutions are facing a similar dilemma of not being able to hire CTE faculty. Addressing CTE teacher and faculty shortages will be critical to training CTE students who have the knowledge and skills to qualify for the available positions that employers are desperate to fill.

Initiatives for Improving CTE Teacher/Faculty Recruitment and Retention

Many State Directors have taken steps to improve CTE teacher/faculty recruitment and retention, but not without obstacles. In 2010, the percent of states with secondary initiatives to recruit and retain CTE teachers increased to 63 percent from 54 percent in 2008, and fell again to 54 percent in 2012. At the postsecondary level, State Directors indicated that CTE faculty recruitment and retention efforts also waned from 44 percent of states in 2010 to 29 percent of states in 2012.

Of the states not implementing CTE teacher/faculty recruitment and retention initiatives in 2012, over half construe cost as the most prominent roadblock. Shrinking budgets have also led to less hiring and heavier workloads for existing staff; one-third of State Directors indicate that staff capacity is limited and these initiatives could not easily be implemented under current conditions.

Though declining budgets over the past two years may have forced states to

scale back on CTE educator recruitment and retention initiatives, other initiatives are in development that may help with this CTE educator dilemma. For example, President Barack Obama announced this summer a new initiative--the STEM Master Teacher Corps--to build and retain a corps of highly effective teachers who are experts in STEM subjects and will share their classroom strategies with other teachers. President Obama has dedicated $1 billion of his FY 2013 budget request to implementing the STEM Master Teacher Corps, which would impact 10,000 Master Teachers over four years. The Master Teachers must commit to their positions for several years and serve as leaders, receiving in turn an annual award of up to $20,000 in addition to their teaching salary.[v]

New Jersey's Alternate Route for CTE Teacher Certification

Contributed by Anne Freeman, New Jersey Department of Education, and Linda Milstein, Brookdale Community College.

New Jersey has taken steps to ensure that qualified individuals from various backgrounds can successfully attain certification and transition to teaching CTE in the classroom. New state administrative code requires alternate route CTE teachers to complete a minimum of 200 hours of a state-approved CTE professional education program during their first year of teaching. In response to the new code, the New Jersey Department of Education (NJDOE) convened a committee of curriculum experts in 2009 to create a curriculum that fulfills the requirements of the code. Committee members included CTE teachers, CTE alternate route specialists, and college and university faculty. The NJDOE wanted to ensure that the curriculum was aligned to state teacher preparation standards, prepared the participants to be effective CTE teachers, and included an understanding of the requirements of CTE.

Upon NJDOE approval of the curriculum in 2010, a multi-year grant was developed for its pilot implementation. Brookdale Community College was the successful applicant for the grant. The first class of CTE alternate route teachers was enrolled in January 2011. At least three sections of the pilot program align with district hiring practices. The NJDOE and Brookdale have had more program participants than anticipated; the expected number of participants was 45 to 60, and the October 2012 cohort will have at least 78 participants. Participants have the option of enrolling for a certification only or to earn 15 credits towards a Technical Education degree at Brookdale. The NJDOE is currently collaborating with Brookdale to establish a roll-out strategy at the conclusion of the pilot program, which concludes at the end of 2013.

The curriculum was designed to meet the four state goals of the pilot program:

- **Goal #1:** Create a provisional teacher preparation program that will address the unique needs of CTE provisional teacher candidates who have diverse backgrounds in educational attainment, formal training, and employment experience.
- **Goal #2:** Encourage CTE provisional teacher candidates who do not hold a college degree to pursue a degree by offering an associate's-level college credit option for completing the CTE provisional teacher program.
- **Goal #3:** Promote effective teaching by providing CTE provisional teacher candidates with instructional and assessment tools and resources that will prepare them to meet the demands of the 21st century CTE classroom.

- **Goal #4:** Increase alternate route CTE teacher retention rates by better preparing them for the challenges of their first year in the classroom.

To make the pilot program as accessible and flexible as possible most coursework is completed online, and each cohort meets one Saturday per month for a face-to-face session. During the second semester of teaching, each new teacher is observed by an experienced CTE teacher or administrator delivering a lesson plan in their classroom. After, the observer meets with the new teacher to provide specific feedback through a teaching rubric. This immediate feedback helps the new teacher make precise and meaningful changes to their practice.

The National Research Center for Career and Technical Education (NRCCTE) conducted a formal evaluation of the pilot program during the 2010-2011 grant year, which included the first cohort of teachers' experience with the program. The results were strongly positive. The next external evaluation by NRCCTE will be expanded to include program instructors and staff of school districts involved with CTE teachers who have completed the program.

Conclusion

More than ever before, jobs of the future are expected to require advanced knowledge and technical skills. Students without these competencies may struggle to land rewarding careers in an increasingly competitive labor market. CTE educators provide critical instruction and guidance that help prepare college- and career-ready students who are ready to meet the demands of business and industry. Preparing more CTE teachers and faculty will be especially pertinent given the present college and career readiness policy agenda.

But, as this year's survey shows, states are still struggling to find CTE educators in many areas of high demand. In NASDCTEc's vision for CTE – *Reflect, Transform, Lead: A New Vision for Career Technical Education* – State Directors concur that education systems must encourage dual academic and certification programs, and employers and industry must provide work-based learning opportunities to prepare and place more qualified teachers and faculty members into classrooms. Advancing initiatives that recruit and retain CTE teachers will be a critical step toward preparing students who are ready for college and careers.

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i Please note the following caveats when interpreting this report: First, some answers are based on respondents' perceptions. Second, while representatives from fifty states and territories provided responses, some items may not have received fifty responses.

ii Georgetown University, Center on Education and the Workforce, Career Clusters: Forecasting demand for high school through college jobs: 2008-2018 (November 2011). Available at: http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/clusters-complete-update1.pdf

iii Georgetown University, Center on Education and the Workforce.

iv Jobs for the Future, Making the Connections: The Role of Employer Associations in Workforce Development. Available at: http://www.jff.org/sites/default/files/MakingConnect.pdf

v The White House, Office of the Press Secretary. President Obama announces plans for a new, national corps to recognize and reward leading educators in science, technology, engineering, and math (July 12, 2012). Available at: http://www.whitehouse.gov/the-press-office/2012/07/17/president-obama-announces-plans-new-national-corps-recognize-and-reward-