

Career Clusters: A Plan of Education for a Global Economy

Introduction: Historically, the purpose of education has been to prepare the next generation for work, family, and citizenship; to shape the future. In this ever-changing world, the role of education is constantly being re-evaluated. Concern over America’s economic status is driving this re-evaluation. The United States is no longer the de-facto world economic leader. The globe has grown smaller and larger simultaneously. Instantaneous connection and communication means that goods and even basic services can be provided from anywhere. And so, faced with the age old conundrum of glass half-full, worldwide economic growth, or glass half-empty, global competition, America needs to be diligent and dedicated to ensure its ‘full glass’ economic position in the world.

The ‘Gaps’: Many issues challenge our education and economic systems – changing demographics, development and use of technology, generational differences in the workforce, among others. At the center of these challenges is a growing gap between the skills our economy demands and the preparedness of our workforce to meet these demands - the skills gap.

The impact of the skills gap is visible in many arenas: postsecondary participation, workforce supply and demand, and student achievement goals and performance. And the results of this gap are stark. Manufacturers are taking business overseas because America is not producing the human capital necessary to meet their current or projected needs.ⁱ

Many consider the skills gap to be the “nation’s most critical business issue.”ⁱ

Not only are we not preparing enough postsecondary graduates to meet employer demand, but we are not preparing students in the areas of greatest need.ⁱⁱ

The ‘ambition gap,’ coined by Thomas L. Friedman in his recent book *The World Is Flat*ⁱⁱⁱ is a major contributor to the widening skills gap. Friedman states that American students do not demonstrate the same drive to academically achieve as students in many other countries, resulting in performance gaps between American students and their international counterparts.^{iv} The skills, ambition and performance gaps create a significant challenge for our country.

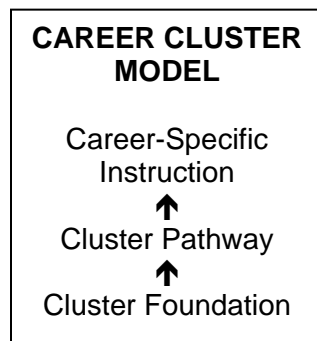
Solutions: While many have proposed silver bullet, short-term solutions, we believe a more systemic response is needed. The fundamental purpose of education and what constitutes its success should be reconsidered. Educators should revisit the issues related to content, methodology, systems, and outcomes that are critical to ensuring that we are educating a workforce prepared for this global economy. The old dichotomies of ‘college bound’ versus ‘work bound’ no longer apply. Academic proficiency alone is insufficient, as is attainment of technical skills for an entry level job. All high school graduates must have the knowledge and skills to enter employment and postsecondary education.^v

Vocational Education	v.	Career Technical Education
For a few students		For all students
Focused on a few jobs		Focused on careers
6 to 7 “Program Areas”		16 Clusters – 81 Pathways
In-lieu of academics		Aligns/supports academics
High school focused		High school & college partnerships

This requires an educational system that is seamless with numerous exit and re-entry points and a curriculum that emphasizes employability and technical skills integrated with rigorous academic content. To effect this shift, CTE and the broader education and workforce systems must respond. So how do we get from where we are to where we need to be?

Career clusters are a promising solution. First introduced in the 1970s, career clusters were developed by federal and state agencies and career guidance organizations to promote career awareness.^{vi} In the 1990s, the U. S. Department of Education re-introduced career clusters to help transition ‘vocational education’ to ‘career technical education (CTE).’ This transition was more than a name change; it represented a fundamental shift in philosophy from CTE being for those who weren’t going to college to a system that prepares students for both employment and postsecondary education in the dynamic world economy. In 2001, NASDCTEc embraced career clusters as a vision for the future of career technical education and took on the leadership responsibility for their further development and maintenance.

While many states have customized career clusters to fit their state model, the federal government defined [16 Career Clusters](#) as a starting point. Within each career cluster there are anywhere from two to seven career pathways. As a framework for grouping occupations according to common knowledge and skills, career clusters serve as an organizer for instruction. Sequences of courses can move learners through a progression of knowledge and skills, leading to attainment of durable, portable competency. Aligning instruction to the career cluster knowledge and skills creates a fundamentally different type of instruction where academic and technical instruction are blended and transitions among learner levels are seamless.



In a career cluster, instruction initially begins broad, at the foundation level, so that learners are exposed to an entire industry and how different careers interact and rely on one another. For example, traditional vocational education would offer a nursing program. A career cluster program of study would be therapeutic services, which includes nursing, but also respiratory therapist, physician, paramedic, pharmacist, surgical technician, etc. A new starting point for instruction means that students are exposed to more potential careers, thus increasing career awareness and student options. This increased career awareness is critical to closing the skills and gender gap. Without knowledge of what careers *really* exist, students rely on their perceptions, friends and family to help choose a career.^{vii} Closing the skills gap not only requires a shift in what is taught, but it also requires a change in perception of certain careers. We must provide students and their parents with accurate information about careers options and what it takes to be successful in the workplace. Career clusters can help.

Career clusters also address the ambition gap. Why are American students unengaged, lacking ambition, and so willing to drop out of school? For many, school is irrelevant. A recent report, [the Silent Epidemic: Perspectives of High School Drop Outs](#),^{viii} interviewed students who dropped out of school asking what would have prevented them from making this decision. The most common response (81%) was opportunities for real-world learning to make the classroom more relevant. Career clusters put education into a relevant context; they link what learners acquire in school to the knowledge and skills that are needed in the workplace. Career clusters make learning relevant and, as such, stand to help students identify and develop their career goals, motivate student learning and make school relevant.

How South Carolina is Using the Career Cluster Approach To Prepare Students for a Global Economy: by Dr. Bob Couch, South Carolina State Director for Career and Technology Education

Need for a New Focus in Education

South Carolina took a taskforce approach in researching and developing a response to the gaps and demands related to workforce development and the opportunities and challenges associated with the global economy. Five years of taskforce and subcommittee efforts led to the passage of the Education and Economic Development Act (EEDA) in 2005. This is the most comprehensive piece of education legislation in South Carolina since the 1994 South Carolina School-to-Work Transition Act (STWTA) that was repealed with the passage of the EEDA.

South Carolina's Response to the Need

The EEDA is education legislation for all students, and it has a pre-kindergarten through sixteen focus. At the very heart of this legislation are career guidance and counseling components, which provide students with decision-making skills and information that is connected to curricula organized around the nationally recognized career clusters. Transitioning to a student counselor ratio of 300:1 is a critical component of the legislation supporting the delivery of individualized career guidance and counseling. Career Development Facilitators will be accessible to students, as they work in conjunction with guidance staff and parents/guardians, to develop an individualized graduation plan that will serve as the guiding document throughout their high schools years and beyond.

Flexibility is a key factor in helping students prepare for transitions from secondary to postsecondary educational opportunities. Middle school students identify career cluster interests, which are further refined by the selection of a career major in the tenth grade. This will be reviewed annually by students, parents, and guidance personnel in order to ensure that the students' goals, interests, and course selections are aligned. Added to these features are requirements that South Carolina's high schools adopt whole school reform models and programs for at-risk students. The Commission on Higher Education will target efforts at the development of statewide articulation and dual enrollment agreements. Support for implementation of this legislation will be delivered through regional service centers to be designated by the EEDA Coordinating Council, a council that will guide implementation efforts until the full implementation target date of July 1, 2011.

South Carolina is facing an education and economic landscape that is making the transition to globalization of businesses, counties, and individuals a priority. While determining how the state can be global, thousands of textile jobs have been lost and the state struggles to attract emerging, more technologically advanced businesses

Goals of the South Carolina Career Guidance Model

1. Provide students in PK-5 opportunities to increase their career awareness and prepare them to link to the middle school career exploration.
2. Enable students in grades 6-8 to have opportunities to access their career interest, review highest career cluster interest, explore career options, close academic gaps, experience shadowing and mentoring, and complete a flexible Individual Graduation Plan (IGP) in the eighth grade.
3. Ensure students in grades 9-12 have the opportunities for career exploration and work-based learning, select courses around educational plans, and select a career major by the tenth grade.
4. Explore opportunities of dual enrollment and articulation that support the PK-16 seamless connection.
5. Add 215 career specialists in middle schools in 2006 and provide an additional 215 career specialists in high schools in 2007 to support the Career Guidance System.

and industries. The EEDA is South Carolina's response to address educational and workforce issues by assessing individual strengths, career goals, and interests to prepare students for successful postsecondary educational and/or career experiences. South Carolina is realizing the "silent crisis," the gradual loss of America's dominance in mathematics and science, which is leading to an inability to be innovative. Additionally, they recognize that access to and transference of data and information, technological advancements, and the desire of individuals, companies, and, in South Carolina, counties to become globally responsive is now driving change. The EEDA will provide opportunities for business and education to collaborate in efforts to meet educational and therefore workforce needs.

How Nebraska is Implementing Career Clusters: by Richard Katt, Nebraska Administrator of Career and Technical Education

Why Nebraska Implemented Career Clusters

Nebraska began the process of evaluating our current CTE structure in 2001. Our Commissioner of Education, Dr. Doug Christensen, challenged CTE not to think "outside the box" as we looked to our future, but rather to "recreate the box" to meet the needs of Nebraska students. His point was good – thinking outside the box generally implies that everything in the box is wrong or needs to be changed. Rethinking the box allows us to keep what works and improve those areas that need to be adjusted. In other words we need to change from "within" as we become more adaptive to meet the needs of Nebraska students and our state's workforce development.

Our Commissioner issued three specific challenges for us to consider as we move forward:

1. **Equal Opportunity:** Relevant career education course offerings must be available for all students to prepare them for the career of their choice. It should not depend upon what current CTE disciplines are offered in the school. (Ex. If a school only offers Industrial Technology Education and Business, but a student wants to prepare for a career in health sciences)
2. **Rigorous/Relevant Curriculum:** Career education courses must be reviewed for rigor and relevance to the workplace needs of the future.
3. **Increased Emphasis on Student Performance:** A change from a program or discipline based program approval system to a system driven primarily by demonstration or student performance.

At this same time, Nebraska State Board of Education created an "Essential Education" policy. This was defined as providing equitable opportunities for an essential education for all students in Nebraska public schools. Through a series of public forums, career and technical education emerged as a topic of discussion within the essential education policy. The policy outlines that all students must have access to career education as defined in our Nebraska Career Education (NCE) model (see appendix A).

The model has allowed us:

1. To start the process of broadening the programmatic influence to include modern employment areas. We are working on developing alternative delivery systems for those schools in remote areas of the state to ensure equity of program offerings. We are also examining the present structure of delivery to create more adaptability.

2. To link to a national framework of knowledge and skill statements based on industry standards – something that has been especially difficult for our small schools in a rural environment.
3. To ensure that equitable opportunities are provided for all students in the career preparation area of their choice.

Partnerships

The NCE career field and clusters model is starting to be used by our community colleges as a framework to align programs. Tech Prep is encouraging the use of the model to assist with articulation of curriculum between secondary and postsecondary education.

All secondary curricula is being organized around the NCE model, not just career education. Academic core and career education courses, which align to the career fields, demonstrate the need for instruction - to provide preparation for postsecondary education and the career of their choice. The model is providing a common language used by school counselors, teachers and administrators. No longer are students just meeting graduation requirements, they are preparing for their future. The NCE model continues to be a central part of rethinking the high school experience initiatives in Nebraska.

To assist in meeting the needs of Nebraska's targeted industries, a new collaborative organization named ***FutureForce Nebraska*** was formed. FutureForce Nebraska is guided by representatives from the Departments of Education, Labor, Economic Development, and Health and Human Services; two- and four-year public and private colleges and universities, private career schools, Nebraska Workforce Development Board, organized labor, and business/industry. FutureForce looks at the workforce needs of industries that Nebraska has targeted for recruitment or expansion and identifies career pathways to prepare traditional students, as well as adults looking for a career transition. Curriculum is being aligned at all levels to meet the workforce needs of these industries. As the curriculum alignment process begins, it starts with a review of the Pathways, which are being finalized in Health Sciences, Manufacturing, Construction and Transportation, Distribution and Logistics, Entrepreneurship, and Biotechnology.

The NCE model has also been adopted by workforce development as a common language to eliminate confusion as clients move from one system to another. We are continuing to build on this relationship through the new Nebraska Career Management System, an integrated, comprehensive on line web portal designed for all Nebraskans to manage their career and education.

Conclusions and Recommendations: Nebraska and South Carolina are just two states already implementing career clusters. In fact, almost all states are implementing career clusters in some form. As you move forward with your state's implementation, here are some implementation strategies for you to consider:

- Use your state's economy and industry bases as your guide to identify which of the 16 career clusters, or which combination of clusters, to implement.
- Incorporate career clusters into your state plan. Gain consensus and be specific about your vision, mission, goals and strategies.

- Ensure that you have statewide administrative support. Consider a cross-agency partnership between K-12 education, higher education, workforce preparation and economic development.
- Include all the players on your team - elementary, middle, and high school representatives; career technical schools; colleges/universities; employers; parents; community representatives; counselors; workforce preparation; economic development, etc.
- Recognize that statewide professional development will be necessary.
- Consider a statewide emphasis on career development. Every student should have a career plan and meet with a counselor, teacher advisor or faculty advisor to review his/her plan.
- Implement a standards-based curriculum that addresses career cluster foundation/pathway standards and academic standards. This is the tool that will move your system away from job-specific preparation to broader, more durable instruction. The curriculum expands, enhances and reinforces the academic content.
- Establish industry advisory committees to ensure you are meeting the most recent needs of your economy, as well as gain useful partners in implementation.
- Consider multi-measure assessments that include cumulative and on-demand measurements, as well as, certification and/or credentials that are industry based and transferable.

The choice to implement career clusters has already been made by many. NASDCTEc believes one of the strongest reasons for making this choice is that career clusters are one solution to closing the skills gap. They form a common language that education, workforce and economic development systems can use to better communicate on supply and demand issues. They help learners gain relevancy in their learning, broaden their options and prepare them for the ever-changing demand of a global economy. Career clusters are an adaptable, flexible framework for ensuring that CTE meets the needs of today's and tomorrow's economy – a full glass solution!

ⁱ National Association of Manufacturers. *2005 Skills Gap Report: A Survey of the American Manufacturing Workforce*. 2005. Deloitte Development LLC. http://www.nam.org/s_nam/sec.asp?TRACKID=&SID=1&VID=1&CID=202426&DID=235735&RTID=0&CIDQS=&Taxonomy=False&specialSearch=False. Introduction.

ⁱⁱ Adelson, Gary and Richard R. Blais. *Project Lead the Way: A Model Program for Initiating, Funding and Maintaining a Successful Pre-Engineering Program in the Nation's High Schools*. ND. Clifton Park, NY: Project Lead the Way. <http://fie.engrng.pitt.edu/fie98/papers/1067.pdf>. Introduction

ⁱⁱⁱ Friedman, Thomas L. *The World is Flat: A Brief History of the Twenty-first Century*. 2005. Thomas L. Friedman, New York. 260.

^{iv} U.S. Department of Education, National Center for Education Statistics, *Trends in International Mathematics and Science Study 2003*. Washington D.C. 2005. < <http://nces.ed.gov/timss/Results03.asp>>. 5 Dec. 2005. Mathematics and Science Achievement of Eighth-Graders in 2003.

^v The American Diploma Project. *Ready or Not: Creating a High School Diploma That Counts*. [Achieve.org](http://www.achieve.org). Nov. 17 2005. Achieve, Inc. [http://www.achieve.org/dstore.nsf/Lookup/ADPsummary/\\$file/ADPsummary.pdf](http://www.achieve.org/dstore.nsf/Lookup/ADPsummary/$file/ADPsummary.pdf). 1-3

^{vi} Schray and Sheets. *Background Paper for Career Cluster Initiative*. 2001.

^{vii} EPIC-MRA. *Decisions Without Direction: Career Guidance and Decision-Making Among American Youth: Comprehensive Report and Data Summary*. Conducted for Ferris State University's Career Institute for Education and Workforce Development, in partnership with the National Association of Manufacturers, the Precision Metalforming Association Educational Foundation and the Associated Equipment Distributors Foundation. May 2002. <http://www.ferris.edu/career institute/report.pdf>. 7.

^{viii} Gewertz, Catherine. "High School Dropouts Say Lack of Motivation Top Reason to Quit." *Education Week*. Vol. 25, No. 26. March 8, 2006.

Appendix A

NCE Career Fields and Cluster Models

