Programs of Study, Career Pathways, Career Academies: Structuring a CCR Solution

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“If assumptions you hold about a problem are wrong, then it is very likely your solutions will be as well”
Too Many College Grads?

- turning out vastly more college graduates than there are jobs in the relatively high-paying managerial, technical and professional occupations to which most college graduates traditionally have gravitated.

- Roughly one of three college graduates is in jobs the BLS says require less than a bachelor's degree.

- College graduates, on average, are smarter and more disciplined and dependable than high-school graduates—so much of the reported earnings differential has little to do with college learning.

- We have engaged in massive and costly credential inflation to certify competency for jobs.

Richard Vedder, director of the Center for College Affordability and Productivity WSJ 6/21/2012
Not Enough College Grads?

By 2020, our research projects that the United States may have 1.5 million too few workers with college or graduate degrees and 6 million more without a high school diploma than employers will demand.  
McKinsey Global Institute, 2012
So, Those are the Challenges . . .

What does “average” CTE do?
To Address College & Career Readiness: *Make High School Matter*

**Increase Engagement**
- Completing HS
- Completing PS/Industry credential

**Improve Achievement**
- Academic
- Occupational
- Technical

**Enhance Transition**
- Through School
- To continuing education
- To the workplace
- To a successful adulthood
CTE Keeps Kids in School

A Survival Analysis

- CTE Participation helps students “survive” high school
- Each CTE credit taken (at 3 or more) reduces the hazard of dropping out compared to students taking less than 3 CTE credits

NS=Statistically not significant
Engagement: We have a boy problem

... but many of the people who don’t fit in are boys. A decade or so ago, people started writing books and articles on the boy crisis. At the time, the evidence was disputable and some experts pushed back. Since then, the evidence that boys are falling behind has mounted. The case is closed. The numbers for boys get worse and worse.

- By 12\textsuperscript{th} grade, male reading scores are below females’
- 11\textsuperscript{th} grade boys write at an 8\textsuperscript{th} grade girl level
- Boys used to have an advantage in math and science, but that gap is nearly gone.
- Boys are more likely to have discipline problems
- Boys account for $\frac{3}{4}$ all D’s and F’s
- Men are a minority in college (40%)
- 2 million fewer men graduate from college over the past decade than women
- Grad school gap is even higher

David Brooks, NYT July 5, 2012
CTE Keeps Boys in School!

A Survival Analysis

- CTE Participation helps boys “survive” high school
- There is no CTE “survival” effect for girls; but it “does no harm”
Why is this important?

- Lower lifetime earning
- Increased risk they will never engage in sustained full-time employment
- 6.1 million NEETs in the U.S. = $100 billion annual cost to U.S. taxpayers
- There are the social & emotional costs that are beyond dollars
- Higher risk of social conflict...look to Spain
Results from all studies show a positive effect of .18 (p=.04).

The studies with methodological and/or statistical controls show a positive effect of .20 (p=.15).
Meta Analysis of CTE & Test Scores

Results from all studies show a positive effect of .10 (p=.16)

The studies with methodological and/or statistical controls show a positive effect of .13 (p=.19)
Results from all studies show a positive effect of 1.67 (p = .00).

The studies with methodological and/or statistical controls show a positive effect of 1.66 (p = .02).
The studies with methodological and/or statistical controls show a positive effect of 1.49 (p=.00).

Results from all studies show a positive effect of 2.57 (p=.00).
“There is one approach that does tend to improve graduation rates and labor market earnings, especially for at-risk youth: high-quality career and technical education (CTE)”

A System’s Approach
To Career & College Readiness
Programs of Study
What is a POS?

Incorporate secondary education and postsecondary education elements;

Coherent and rigorous content in a coordinated, non-duplicative progression of courses that align secondary education with postsecondary education... to adequately prepare students to succeed in postsecondary education;

May include dual or concurrent enrollment programs;

Lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree.
To Test the Concept of POS . . .

- Complete high school?
- Achieve academically?
- Achieve occupationally?
- Transition to life beyond high school?

- 3 rigorous, longitudinal studies to examine various elements of POS
- A Cross-Site Study examining 3 exemplary sites from the rigorous studies to determine common attributes and elements that make programs work
  - The 10 elements developed by OVAE and others used as interview/observation framework
- A qualitative study to examine development and technical assistance in 6 states (not reported here)
Research is points toward:
Engaging Students through Career Development

K-5: Career Awareness
Introduction to health careers

6-8: Career Exploration
Discovering interest in health careers - Begin Individualized Graduation Plan

Grade 8: Transition
Choosing a health career focus (can change easily at any time later)

9-12: Career Preparation
Academics and technical course work, intensive guidance, individual graduation plans

Postsecondary: Career
Achieving credentials: college, certification, apprenticeship, military

Employment: Career Advancement
Continuing Education and Lifelong Learning

A Developmental ACP that Drives Program Choice & Student Course Assignments
3-Way Integration

**System**
- Vertical Alignment, “Articulation”
- Industry & Education Partnerships
- Career Clusters/Pathways
- Dual Credit/Enrollment

**Programmatic**
- Incorporate more academics into CTE
- Incorporate more CTE into Academics
- Career Academies/MCHS/TCTW

**Curriculum/Instructional**
- CTE to Academic & Academic to CTE
- Pedagogic framework; Signature Features
- Teacher skill/performance
Emergent trends

- Some evidence of academic achievement effect, but the evidence is mixed

- Mandate did not appear to have much effect on POS implementation (e.g., % of students engaged in POS, use of dual credit)

- 10 OVAE elements are not equally important or too costly to employ (e.g., TSA)

- Other elements may be more important (e.g., external funding)
Emergent Trends II

- Even when the policy is required by law, implementation is uneven and may be skewed towards lower performing districts.

- Career guidance/career development is emerging as a necessary condition for RPOS

- Cost is a barrier (counseling, TSAs, professional development)
Implicit Assumptions: With Policy Implications

- Education reforms operate independently of economic context
- Adolescents are rational, logical decision makers
- The 10 “elements” are the right elements to ensure POS success
- Accountability challenges for POS
  - What will POS success mean?
  - Enrolled in any college?
  - Pursuing same POS pathway?
  - Student sense of contribution of POS?
Other Approaches
An Industry Driven POS-Toyota

THE SKILL PIPELINE PROBLEM

The U.S. community college system produces less capable graduates than parallel systems in competitor nations

Intentional preparation consists mostly of academic education only, i.e. pass technical courses and get a degree.

Schools do not produce graduates with vital preparation for workplace success, such as a highly developed safety culture, skills in workplace organization, lean work skills, and problem solving.
The Toyota Solution
Seamlessly Connect Paths for Career Long Growth
and to Strengthen the Whole Company

TOYOTA
Advanced Manufacturing
Career Paths

TOYOTA Maintenance Career
TOYOTA Seibi Career
Toyota Maintenance Internship
Toyota Advanced Program
Org Mgt. Seibi Mgt. Seibi Tech

Automotive Manufacturing
M.B.A.

Lean Manufacturing Certificate

Manufacturing Management Program
B.B.A.
A.B.

TOYOTA Engineering Career
Production Engineer
TEMA

NED
New Engineer Development

AME
Advanced Manufacturing Engineering Program
Electrical / Industrial Mechanical
B.S.

K-12
Project Lead the Way

* 6 mo. – 2 years
* Full-time floor experience
The Solution
Totally Redesign the Learning Environment

The New Model School
For Manufacturing

- **MORE REALISTIC**
  Looks Like a Factory
  Feels Like a Factory

- **MANUFACTURING SIMULATOR**
  Central Focus
  Reason for Learning
  Toyota Troubleshooting

- **TOYOTA LEARNING**
  Safety, TPS, 5S
  Learning Lab

- **ORGANIZED BY**
  FUNDAMENTAL SKILL
  Electricity / Fluid Power
  Mechanics & Fabrication

- **PROCESS LEARNING**
  Students learn in a
  structure sequence

- Students Learn the **Right Way**
  the **First Time**

Make the
Place of Learning
look and feel like the
Place of Work
The term “career pathways” refers to a clear sequence of education coursework and/or training credentials that:

- Is aligned with the skill needs of regional industries
- Includes the full range of secondary, adult education, and postsecondary education options
- Includes curriculum and instructional strategies that contextualize learning
- As appropriate, integrates education and training that combines occupational skills training with adult education services, gives credit for prior learning, and adopts other strategies that accelerate advancement

NOTE: USDOL focus is on adults and community-college level postsecondary education
The Answer: Career Pathways (cont.)

- Leads to the attainment of an industry-recognized degree or credential
- Includes academic and career counseling, and support services
- Is organized to meet the particular needs of adults, with flexible and non-semester-based scheduling, and the innovative use of technology
- Examples (I-Best in Washington State)
Career Pathway – Stackable Credentials

A recent McKinsey Global Institute study concludes, “policymakers and business leaders across the globe will need to find ways to vastly improve their capacity to provide job-relevant education and training. And, in both developing and advanced economies, new approaches to job creation for low and middle-skill workers will be required” (Dobbs, et al, 2012)

- More than course credit pathways
- Portable: trusted by employers and institutions of higher education (external validation)
- Stackable: each credential has value (labor market signal) leads to another credential:
  - 51% of CC certificates require less than one year
  - Offer accelerated entry into the labor market
  - Credentialing process can begin in upper secondary education
- Part of a career pathway system
Ohio Stackable Certificates for Welding Technology

- AAS Welding Technology
- Advanced Welding Certificate
- Welding Tech Certificate
- Precision Cutting Certificate
- Welding Prep
Three POS Perspectives
A Summary
The OVAE Thinks You Need (OVAE, 2010)

- Legislation and Policies
- Partnerships among Education, Business, and Other Community Stakeholders
- Sustainable Leadership and Shared Planning
- Rigorous Academic and Technical Standards Aligned with Curriculum and Assessments
- Aligned Secondary and Postsecondary Education Elements
- Credit Transfer Agreements
- Accountability and Evaluation Criteria
- Guidance, Counseling and Advisement
- Professional Development
- Innovative Teaching and Learning Strategies
Career pathway systems provide a clear sequence of education coursework or training credentials and have the following elements:

1. Build cross-agency **partnerships** & clarify roles
2. Identify industry sector or industry & engage employers
3. Design education & training programs
4. Identify funding needs & sources
5. Align policies & programs
6. Measure system change & performance
Career Pathway Principles (CLASP, 2013)

- Adopt and articulate a **shared vision** of the career pathway system and a governance
- Demonstrate **leadership and commitment** to institutionalizing career pathways (K-12, Adult Ed, Workforce Agency, CC & Higher Ed)
- Ensure that career **pathways are demand-driven**, focus on sectors/occupations, and engages multiple employers within a sector or occupational area
- **Align** policies, measures, and funding
- Use and promote data and **continuous improvement strategies** focusing on continuously improving efforts by measuring participants’ interim and ultimate outcomes as well as process indicators.
- Support robust **professional development** for career pathways practitioners and administrators.
Commonalities: Labor, Education, Private Non-Profit Sector

- Partnerships
- Labor market demand focused balanced with individual focus (career development)
- Alignment – policies, measures, education programs and credentials
- Professional development
- Data driven: continuous improvement & accountability
The good news: This is CTE’s Time

Career & Technical Education

- Programs of Study/Career Pathways
- College and Career Ready
- High Quality CTE PFT/Enhanced CTE
Build a System Based on Labor Market and Student Needs (CLASP, 2013)

Multiple entry points

Academic Skills and Credentials (Customizable based on labor market needs and target population)

- Basic Skills Instruction: Adult Basic Education, English as a Second Language
- Basic Skills Bridge Programs

Employability Skills and Work Experience (Customizable based on labor market needs and target population)

- Basic Career Readiness
- Employment in jobs that require basic occupational skills
  - Internships
  - Pre-Apprenticeships
- Employment in jobs that require intermediate occupational skills
  - Internships
  - Pre-Apprenticeships
- Employment in jobs that require high occupational skills and management skills
  - Pre-Apprenticeships

Multiple exit points at successively higher levels of education and employment

Supportive Services and Navigation Assistance

Family-supporting employment and further educational opportunities
Build a System: Curriculum & Pedagogy

- Classroom instruction
- Work based learning-WBL
- CTSOs
- Project based learning
- Contextualized learning
- Labs, Shops
- PFT/High Quality CTE
- Job shadowing
- Internships
- School-based enterprise
- Cooperative education
- Apprenticeships
- Leadership development
- Professional development
- Service/social engagement
- Competitive events
Building an Effective POS: Focus on Signature Features

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<tr>
<th>Program of Studies</th>
<th>High Quality CTE</th>
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<tr>
<td>• Vertical integration; alignment of systems (HS, PS &amp; Industry)</td>
<td>• Curriculum derived from industry requirements</td>
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<td>• Partnerships – true partnerships</td>
<td>• Curriculum delivered through authentic problems/projects</td>
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<tr>
<td>• Credentialed based career pathways: K-12 - adult</td>
<td>• Embeds related academics &amp; 21\textsuperscript{st} century skills</td>
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<td>• Learning occurs in teams</td>
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<td>• Highly qualified teachers (PD)</td>
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<td>• WBL &amp; CTSO</td>
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High school is the last education opportunity paid for wholly by the public. It’s purpose has to be to do the best it can to provide all who leave it the foundation necessary to enter, or further prepare for, adult life.

Barton, 2006
Shameless Promotion . . .

College and Career Ready in the 21st Century

Making High School Matter

James R. Stone III • Morgan V. Lewis
If you remember nothing else

- There is no one solution to the challenges or preparing kids for the 21st century workplace in a global market place
- Career development is the keystone to any solution
- Employer engagement is the arch: public, private, non-profit
- A systems approach is required to build the bridge
  - Multiple pathways
  - 3-way integration
    - Vertical/systems
    - Programmatic
    - Curricular
  - Multiple pedagogies are required
- YOU can make this happen
VISIT OUR WEBSITE OR SEND ME A NOTE

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