



It's *Their* Future:

CTE and the “Middle-Skill” Workforce

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High, Middle, or Low?

High skill

- Professional/STEM
- B.S./B.A. +

Low skill

- Service
- “Unskilled”, less than HS

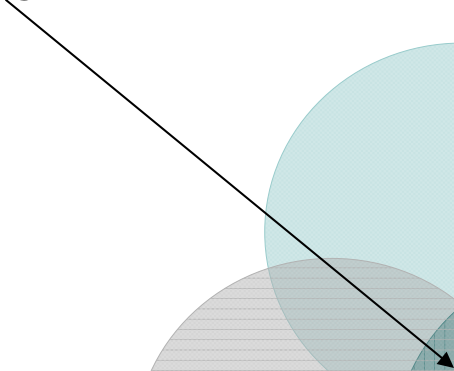
Middle skill

- Technician/STEM
- Education/training, less than B.S/B.A



"STEM Crisis"

CTE



"Hourglass Economy"

"Quiet Dilemma"



STEM Crisis

- Impending shortage of “knowledge workers” – specialized skills in Science, Technology, Engineering and Math
- New, emerging and altered jobs
- K-12 pipeline inadequate
- Underrepresentation of female and minority students



The Quiet Dilemma

- “One way to win” paradigm
- International shortage of technicians
- Underemployment of college graduates
- Reverse transfers

Source: Kenneth Gray, 2006



In the U.S. today:

- For every 100 9th graders:
 - 80 expect to complete a 4-year degree
- Yet, in reality:
 - 68 graduate from high school on time
 - 40 enroll immediately in college
 - 27 still enrolled in sophomore year
 - 18 graduate from college “on time”
 - Two-year colleges within 3 years
 - Four-year colleges within 6 years
- Nearly all will someday go to work...

Source: National Center for Public Policy and Higher Education, 2004



The “Hourglass” Economy?

Information economy demands

- Highly educated professionals
- Low level service jobs

Global competition

- Engineers and scientists
- Off-shoring

Retirement patterns

America’s forgotten Middle-Skill Jobs, Urban Institute, 2007



Research Report: The Urban Institute

*America's Forgotten Middle-Skill Jobs:
Education and Training Requirements
in the Next Decade and Beyond*

*By Harry Holzer, Georgetown U
Robert Lerman, American U*

www.urban.org



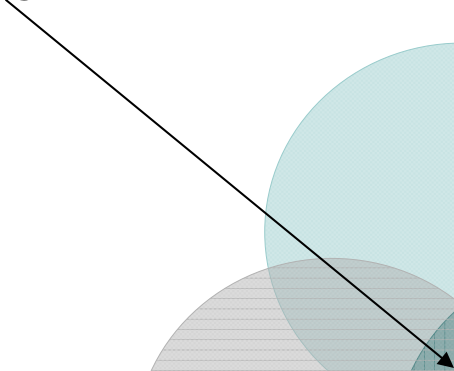
Findings in brief:

1. The demand for middle skill jobs will remain quite robust.
2. The current supply of workers with these skills will also likely shrink as baby boomers retire.
3. Education and training programs that help less-educated workers gain these skills remain a worthwhile investment.



"STEM Crisis"

CTE



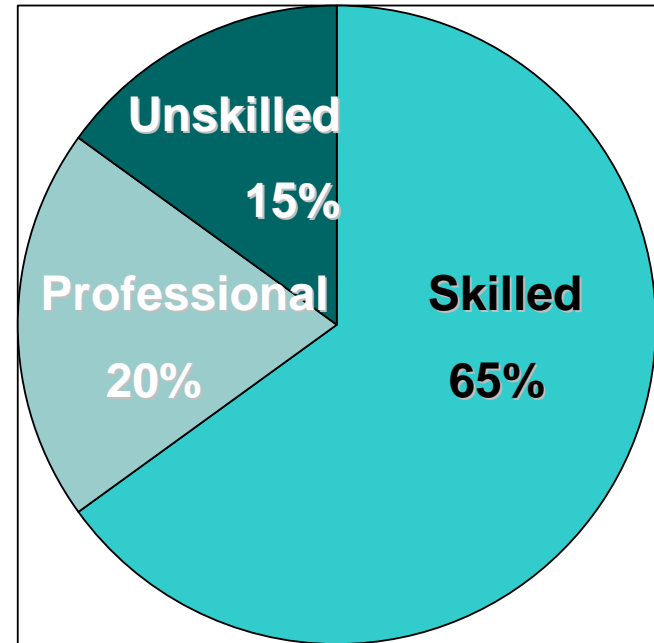
"Hourglass Economy"

"Quiet Dilemma"

The Changing U.S. Workforce



1950



2005

Job Skill Level Changes

Year	Skilled	Unskilled	Professional
1950	20%	60%	20%
1991	45%	35%	20%
2005	65%	15%	20%

Unskilled: High school or less with no technical training

Skilled: Post-secondary training, but less than a baccalaureate degree. Includes associate degrees, vocational-technical schools, apprenticeship training, and military.

Professional: Baccalaureate degree or more.

Education Levels: Comparison

High School

B.A/B.S +

1950 45%

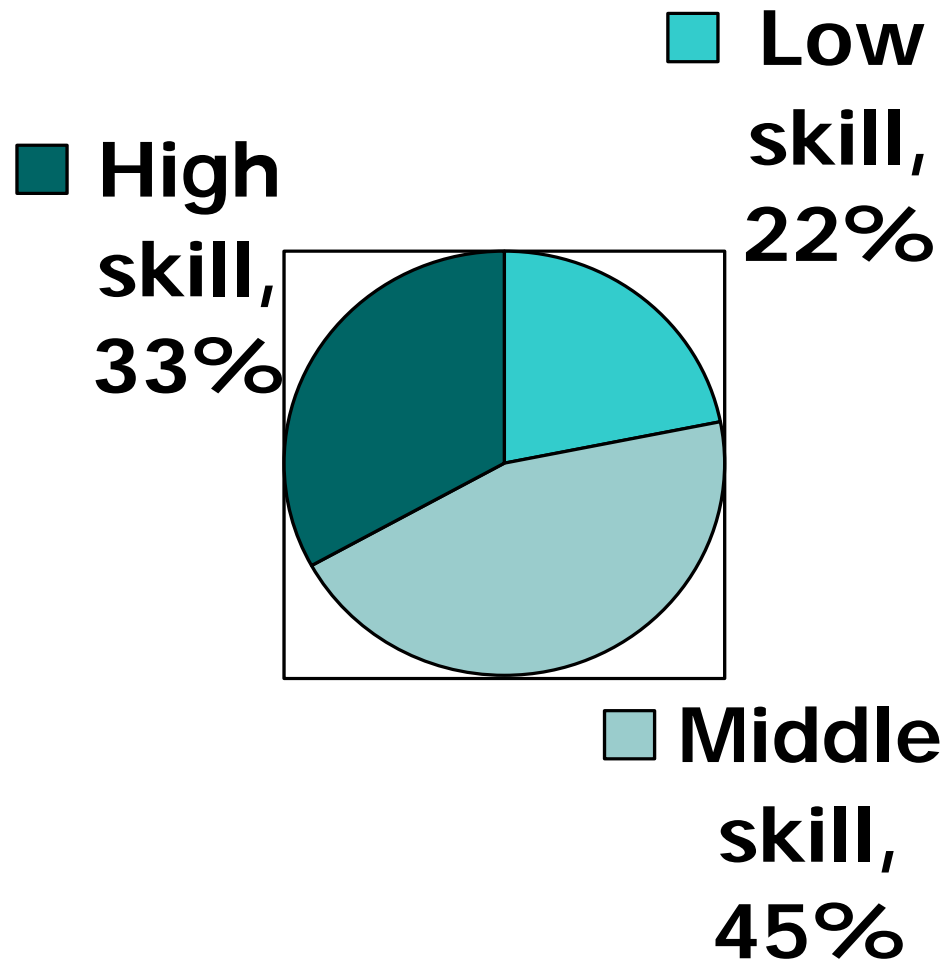
1950 5%

2005 85%

2005 28%

Source: Aspen Institute, 2006

Growth in Demand for Middle Skills 2004-2014



No Bachelor's Degree Required

1. Air traffic controller \$102,030 (1)
2. Computer technical support specialist \$67,689 (7)
3. Nuclear power reactor operator \$64,090 (10)
4. Nuclear technician \$59,200 (13)
5. Real estate broker \$58,720 (15)
6. Elevator installer and repairer \$58,710 (16)
7. Dental hygienist \$59,790 (18)
8. Nuclear medicine technologist \$56,450 (20)
9. Detective and criminal investigator \$53,990 (24)
10. Commercial pilot \$53,870 (25)

Source: US Bureau of Labor Statistics, 2007



High Growth Sectors

- Advanced mfg
- Automotive
- Construction
- Geospatial tech
- Homeland security
- Information tech
- Transportation
- Aerospace
- Biotechnology
- Energy
- Financial services
- Health care
- Hospitality
- Retail

Middle Level Careers in Health Care

Title	Education/Training	Salary
Dental Hygienist	Assoc. Degree/Licensure	Median: \$30.19 (hour) Range: \$19.45 – 41.60
Dental Lab Technician	Assoc. Degree; Certificate Program	Median: \$35,140 Range: \$24,300 - \$47,380
Physical Therapy Assistant	Assoc. Degree/Licensure	Median: \$41,360 Range: \$26,222 - \$57,780
Respiratory Therapist	Assoc. Degree/Licensure	Median: \$47,420 Range: \$35,200 - \$64,190
Veterinarian Technician	Assoc. Degree	Median: \$12.88 (hour) Range: \$8.79 - \$18.78
Diagnostic Medical Sonographer	Assoc. Degree	Median: \$48,660 Range: \$40,000 – 64,000
Nuclear Medicine Technologist	1-2 years (Assoc Degree)	Median: \$65,000
Radiologic Technologist	1-4 years (Assoc Degree; B.S.)	Median: \$48,000 Range: \$42,000 - \$65,000



Finger Lakes Region: Top Ten

Projected to growth 23%+ (2004-2014):

1. Network Systems Analysts
2. Network Systems Administrators
3. Database Administrators
4. Home Health Aides
5. Hazardous Materials Removal Workers
6. Medical Assistants
7. Business Operations Specialists
8. Audio-visual Collections Specialists
9. Security and Fire Alarm Systems Installers
10. Computer Software Engineers, Applications

Source: NYSDOL 10/08



Finger Lakes Region: Top Ten

Projected to have most openings (2004-2014):

1. Cashiers
2. Retail Salespersons
3. Waiters and Waitresses
4. Registered Nurses
5. Janitors and Cleaners, Commercial
6. Teacher Assistants
7. Office Clerks
8. Food Preparation Workers
9. Team Assemblers
10. Home Health Aides

Source: NYSDOL 10/08



The Changing Workplace: Rules for Success

○ Old Workplace

- Choose occupation
- Training/education
- People **or** technology skills
- Work hard
- Loyal to company
- Gain seniority
- Benefits and pension

○ New Workplace

- Skills bank
- Continuous learning
- People **and** technology skills
- Adapt to change
- Pride in work
- Team member
- Package of supports



New Skills for a New Century

- Digital Age Literacy
 - Basic, Scientific & Technological Literacy
 - Visual and Information Literacy
 - Cultural Literacy and Global Awareness
- Inventive Thinking
 - Adaptability, Managing Complexity
 - Curiosity, Creativity, Risk Taking
 - Problem Solving and Sound Reasoning

Source: Learning Point Associates, NCREL, 2006



New Skills for a New Century

- Effective Communication
 - Teaming, Collaboration, Networking
 - Personal and Social Responsibility
 - Interactive Communication
- High Productivity
 - Prioritizing, Planning and Managing
 - Effective Use of Real-World Tools
 - Focus on Meaningful Results

Source: Learning Point Associates, NCREL, 2006



Career and Technical Education in the Global Economy

1. Middle skill job preparation
2. Flexible career pathways
3. Hands-on and technical
4. Basic knowledge and skills
5. Applied skills



The Nontraditional Employment and Training Project, University at Albany

www.TheNetProject.org