



Open Learning

Basics of Workforce Education Reform

National Academies Government-
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(GUIRR)

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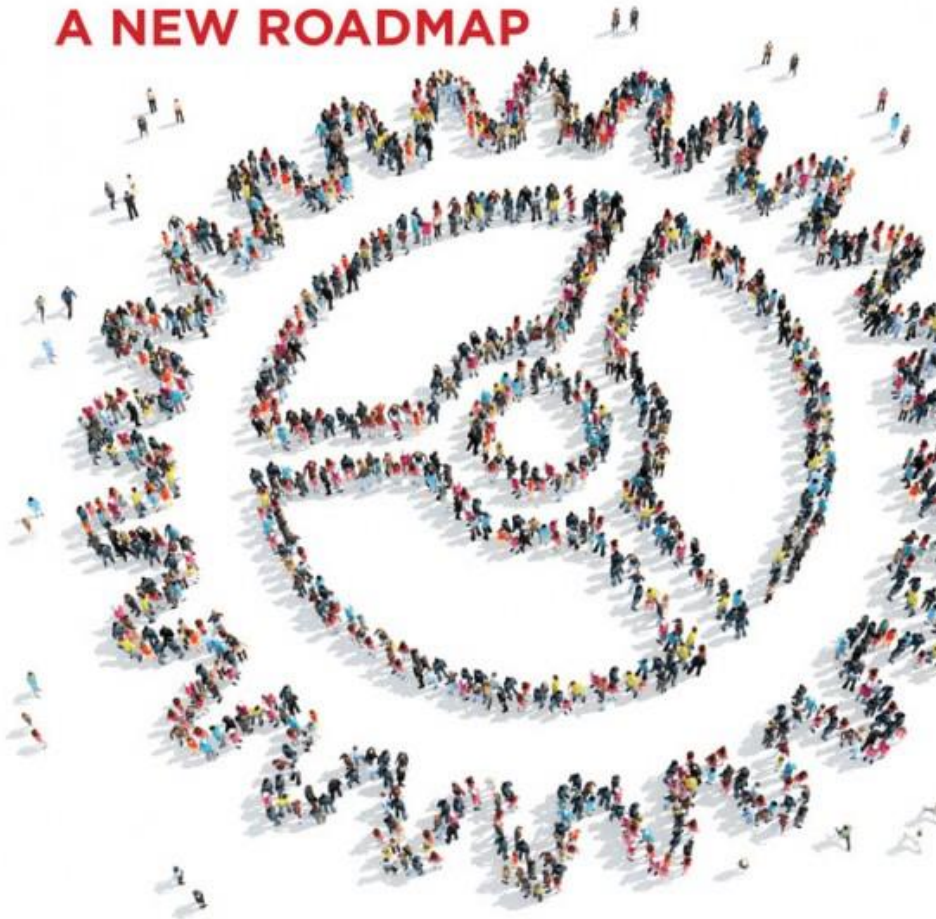
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Workforce Education, an overall perspective

- At the end of World War II, 16 million soldiers and sailors quickly came home - and at the same time we were dismantling our wartime economy – so we passed the GI Bill to educate them for new, better jobs – it worked
- We have a similar opportunity with likely with similar kinds of numbers
- Workforce education can raise skills, increase job opportunity, enable better-paying, quality jobs
- Workforce education now much higher on the policy priority list
- The question: how do we improve workforce education?
- *We have a broken workforce education system*

WORKFORCE EDUCATION

A NEW ROADMAP



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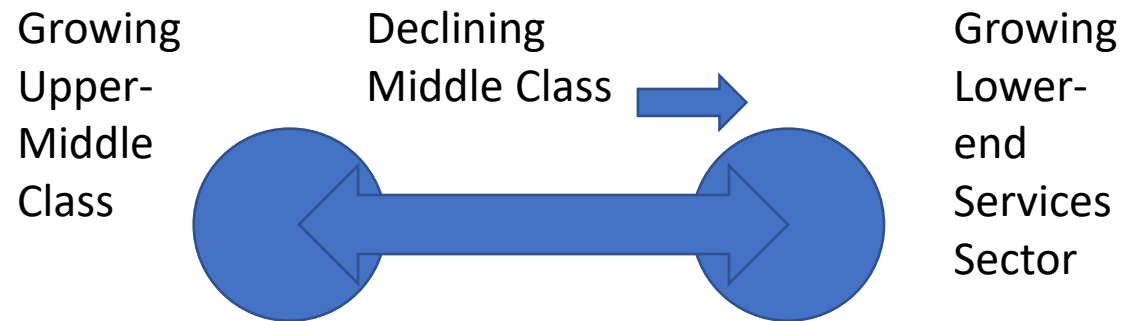
- This MIT Press book was part of a major study of workforce education at MIT's Open Learning office

The Workforce Education Challenge

- Disconnect between work and learning
- Disinvestment by government and employers
- Labor Dept. training programs don't reach higher technical skills, incumbent workers
- Education Dept. programs focused on college not workforce needs and not linked to the Labor Dept. programs
- Vocational education in secondary schools largely dismantled
- Underfunded community colleges, lack the resources to provide advanced training in new fields and have too low completion rates
- Colleges and universities disconnected from workforce education
- Lifelong learning is missing
- Underfunded advanced technical education programs at NSF and at Advanced Manufacturing Institutes
- A broken a broken labor market information system
- The existing actors are in "legacy" sectors - hard to change

The US has longstanding quality job problems

- We have had increasing inequality, not economic convergence – a festering problem for 15 years.
- Post-Covid tight labor markets improved compensation after years of working class wage stagnation, but deep inequality remains with workers unprepared for better jobs
- The Barbell problem identified by economist David Autor:



- Technological advances, especially in IT, are putting many quality jobs out of reach for workers who didn't get the proper skills and training.
- *We looked at workforce needs in 3 large sectors, 30% of US employment --*

Examining 3 sectors – 1/3 of US employment:

1) Manufacturing

- Has been **middle class pathway** for men w/o college
- But **Median income is down for men** w/o HS diploma or w/HS diploma or some college
- U.S. **manufacturing employment fell** by one third, 2000 – 2010
- High overall **labor non-participation rate**
- 2+m mfg. jobs will open up from **aging demographics**
- **Advanced manufacturing** will require higher skills

2) Retail: An ongoing social disruption

- **2005:** US overbuilt with 6x more retail sq.ft. as any European nation; 50% more per capita than Canada
- **2008:** Economic crash led to “discount model” of dumbing down the workforce, emptying stores of staff
- **2015:** Warehousing and robotics provide further disruption
- **2020:** Coronavirus forced massive closings, online take-off
- **New Model?** Sales clerk as personal advisor
 - “Omni-channeling” – online/face-to-face entry
 - Higher skills, IT fluent, guide customer through product options
 - How to train? Train the first level managers

3) Healthcare Delivery

Healthcare: Growing Sector

- An **aging** population, higher health care demands
- New medical **technologies** creating new professions
- Results: More jobs with **higher skills needs**, so **new training** systems
- **Barriers:** Established health professions, limited entry
- Could online entry help?

Upskilling is Ongoing:

- Jobs increasingly tend to go to **college educated**
- Some college – has replaced H.S. as core job credential
 - But college: has it become a **default credential**? Not really tied to needed skills
- But **growing IT**, demanding new skills
- **Result:** New high or middle skills jobs will require education beyond high school
- **Barrier:** only 1/3 of Americans over 25 have a 4-year college degree
- **Need:** new workforce ed system

Workforce Education System – Where do we need attention?

- Weak labor market information system:
 - Workers don't know what skills they need
 - Educators don't know what skills to educate for
 - Employers don't know what skills workers have
- Transition from school to work a problem in the US
 - Contrast: Germany, Austria, Switzerland
 - H.S. diplomas not enough and vocational H.S. largely ended,
 - CC's underfunded, completion too low
- Colleges are not engaged in workforce preparation
- No transferable skills certification system in most fields – school credential doesn't equal job credential
- Ed and Labor Dept programs are not aligned
 - Labor Dept. : Programs focused on unemployed and underemployed, not upskilling,
 - Incumbents, new entrants not reached
 - Education Dept. : Pell grant programs focused on degree-only programs

New Education Technologies: Online Technologies

- Coronavirus forced education online –
 - problem for K-12, better for college level and reskilling workers –
 - but it really introduced online education at scale
- Became widespread and could be optimized with blended learning
- *Online is a way to scale-up to meet the needs*
- Can join online with:
 - VR/AR technologies: Learning by doing
 - Computer gaming and simulation
 - Blockchain certification: Owning credentials
 - Bootcamps
 - Digital Tutors: Need AI advancement to combine shared education platforms (MOOCs) and individualize instruction and assessment
- *(MIT Open Learning is experimenting with each)*

EdTech enables a New Pedagogy

- So - Covid-19 boosted online education – colleges and universities would not have survived without it
- But “zoom” classes didn’t take advantage of the opportunities in the online medium
 - They were a stage play, but we can do movies
- Those fluent with MOOCs were prepared for Covid19, most faculty weren’t
 - > if online is to scale – including into workforce education
 - the learning lessons need to be absorbed
- What are the new pedagogies from online education?

EdTech and the new pedagogy -

Lessons from Learning Science for Online:

- ***Bite-sized chunks*** – 10 Minute Segments and the mind-wandering problem
 - Enabler: Online
- ***Spaced learning***
 - Reminders just before you forget
- ***Continuous assessment***
- ***Feedback loops***
- ***Mind and Hand*** – hands-on learning – examples:
 - Blended Learning is best
 - Tactile and Active Learning
 - Enabler: VR/AR and prototyping technologies

• ***New Delivery Modalities***

- Online and Solving the Access Problem
- Enablers: Online Platforms with broadband access, MOOC's, certificates
- ***Content*** – *Formal, Informal, Professional* – online can be geared to each
- ***Pedagogy*** opportunities with ***EdTech*** opportunities:
 - AI and digital tutors – personalized education
 - Digital certificates and badging (with blockchain)

And oncoming, new education technologies are further enablers for workforce ed

- We need development and implementation of the new technologies noted above:
 - VR/AR,
 - gaming,
 - digital tutors
 - AI
- These will be *especially* important tools for workforce education – they further enable:
 - Hands-on, project-based learning – learning by doing
 - Trouble-shooting
 - Critical thinking
 - Continuous assessment

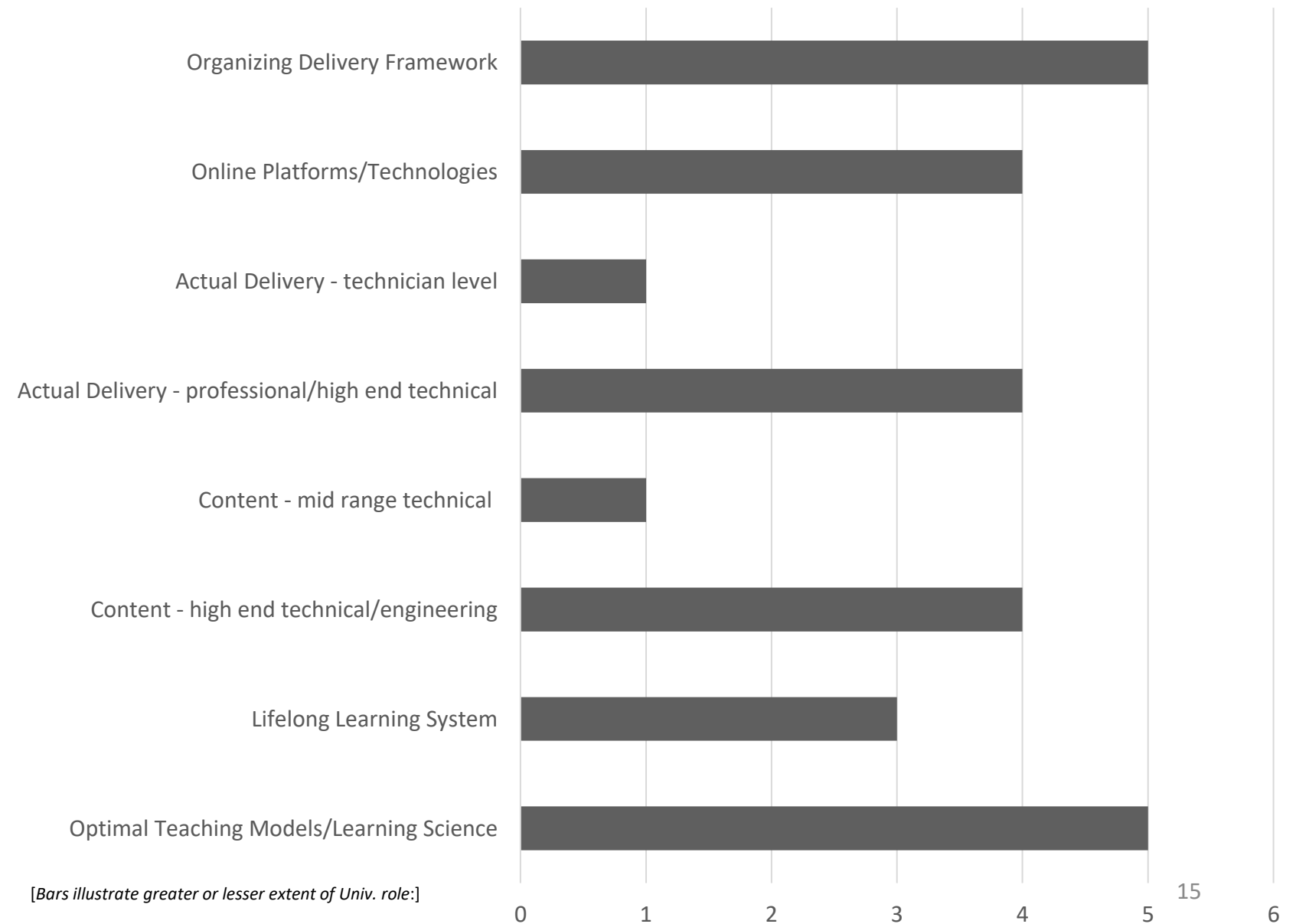
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Question:
What can a
University
do?

What is the University Role?

Roles in Different Areas:

("notional" chart)



Policy Implications

- **New education technologies** - need development and implementation – VR/AR, gaming, digital tutors/AI
- **Short Courses** - BUT must connect to CC certificates, degrees
- **“Trifecta”** - CC programs for CC students, plus incumbents and HS students
- **Apprenticeships or “Apprenticeship Light”** - youth and CC – in fields that have clear lines for increased responsibility and wages, er-ee agreements
- Need for actors to coordinate: CC’s, employers, regional assoc.’s, state gov’t
- **CC completion rate**
- **Technical and Comprehensive HS’s** – state role
- **Expanded employer role** – apprenticeships/training, standards
- **New curriculum for advanced fields** – start with advanced mfg.
- **Unifying efforts at the state level** – states – across Labor/Education programs
- **Labor market Information system** – DOL starting

Three Problem-Solving Examples:

- **Trident Technical College in Charleston, South Carolina– apprenticeship answer**
 - Small and mid-sized mfg. co's had trouble finding employees
 - Worked with Trident Tech to develop a youth apprenticeship starting in HS junior year – work/learn model
 - Well paid so attractive to students – put students in with much more mature group – HS in the am taking math and science, Trident in midday for technical courses, afternoon at Co.
 - Employers are in a demographics challenge – need new ways to attract workers, and need higher skilled workers – apprenticeships an answer
- **TCATs in Tennessee – statewide network of technical colleges - Fix Community College Completion rates**
 - Currently 30% completion at many CCs, if 70%, we'd solve many problems
 - TCATS: Don't do the remedial courses first, they frustrate and discourage students
 - Start programs with skills courses so students can see job possibilities along with remedial courses, and gear remedial work to job skill area
 - 80% completion rate, 86% jobs in skill area trained for
- **Ashnuntuck CC in Enfield, Connecticut – the Trifecta and band together groups of employers**
 - Offers programs not just to CC students, but to high school students in afternoons and incumbent workers in area companies
 - Put together groups of employers for these
 - A workforce ed program for a single employer is not lasting – market ups and downs, worker needs vary
 - Put groups of employers together, along with a CC
 - Gets around fluctuating needs of a single employer

Closing Recommendations: New Delivery Models

- The Trifecta – incumbent workers, H.S., CC students in CCs
- Youth Apprenticeships and “Apprenticeship Light”
- CC funding and improve the completion rate
- Short programs (connected to degrees)
- Regional workforce efforts by groups of employers, w/state, CCs
- Integrated federal programs at the state level
- New labor market information systems
- New education technologies – *a key to scale-up needed*
- *Point: workforce education is key in quality jobs and addressing our economic inequality – will we act?*