Workforce Education – A New Roadmap

– Final Report of the MIT Open Learning Workforce Education Project

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Coronavirus makes the Workforce Education need clear:

- Pandemic makes starkly clear the consequences of our growing economic inequality

- The poor and working class have paid a disproportionate price in sickness, loss of life, and economic loss

- Unemployment is now 10.1 million, and many have dropped out of the workforce – highest "labor non-participation" rate ever

- Many sectors face major damage – in-person retail, restaurants and hospitality, transportation, travel and tourism – many will have to shift job sectors

[SS] Coronavirus and Workforce Education, continued

- A New McKinsey report says:

  - "Before the pandemic, net job losses were concentrated in middle-wage occupations in manufacturing and some office work, ... and low- and high-wage jobs continued to grow. Nearly all low-wage workers who lost jobs could move into other low-wage occupations—for instance, a data entry worker could move into retail or home healthcare. Because of the pandemic's impact on low-wage jobs, we now estimate that almost all growth in labor demand will occur in high-wage jobs. Going forward, more than half of displaced low-wage workers may need to shift to occupations in higher wage brackets and requiring different skills to remain employed." McKinsey, Future of Work, Feb. 2021

- One critical tool we will need: workforce education

- 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 number

- 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?

Basics on this Report on answers to the "quality job" problem

- This study is from MIT Open Learning – OL was increasingly offering workforce learning in its online programs – in our MicroMasters, our professional education Xpro program, in our MITx online courses, and in our bootcamps that accompany online courses

- In 2018, we started our Workforce Education Project to better understand the workforce education challenge

- Schmidt Futures foundation supported study, and we studied:

> -- the overall workforce education system, it's strengths and weaknesses, and new models to make it stronger

- <u>This is the Final Report</u>, in book form from MIT Press

WORKFORCE EDUCATION
A NEW ROADMAP

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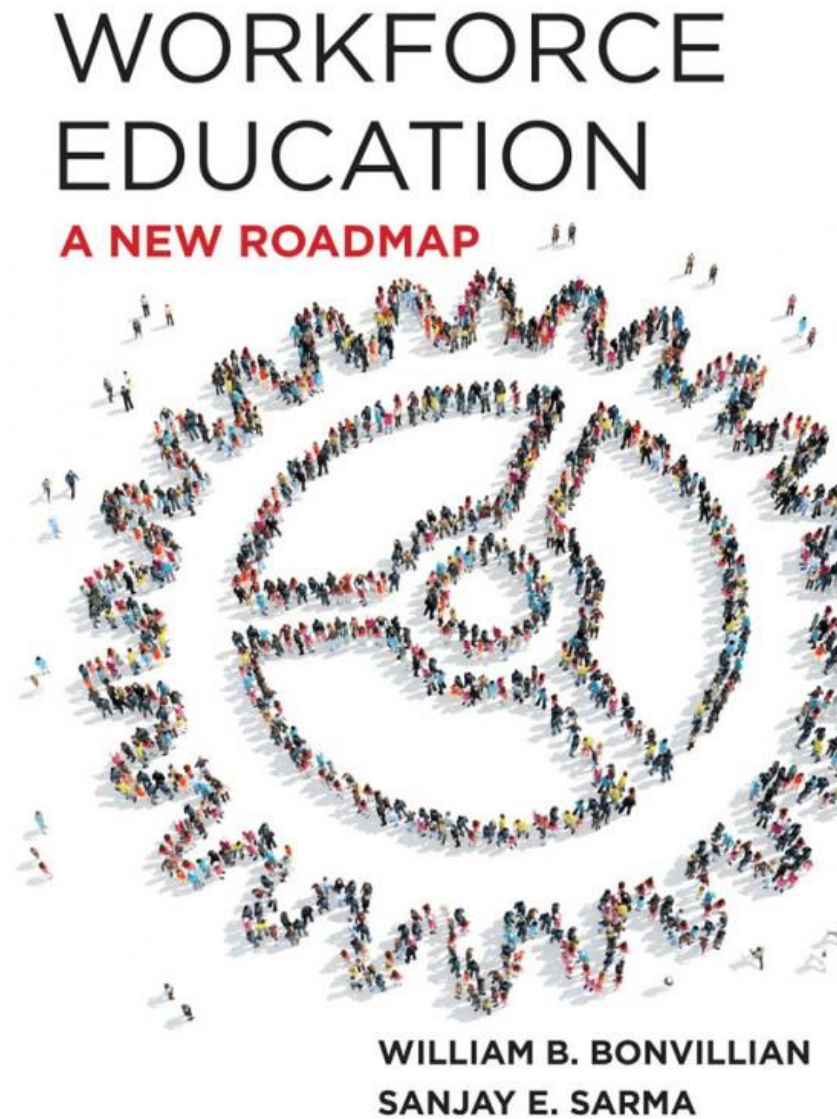
The Workforce Education Challenge

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

It's not just Coronavirus – we have longstanding quality job problems

- We have increasing inequality, not economic convergence – a festering problem for 15 years.

- The Barbell problem identified by economist David Autor:

Growing Upper-Middle Class

Declining Middle Class →

Growing Lower-end Services Sector
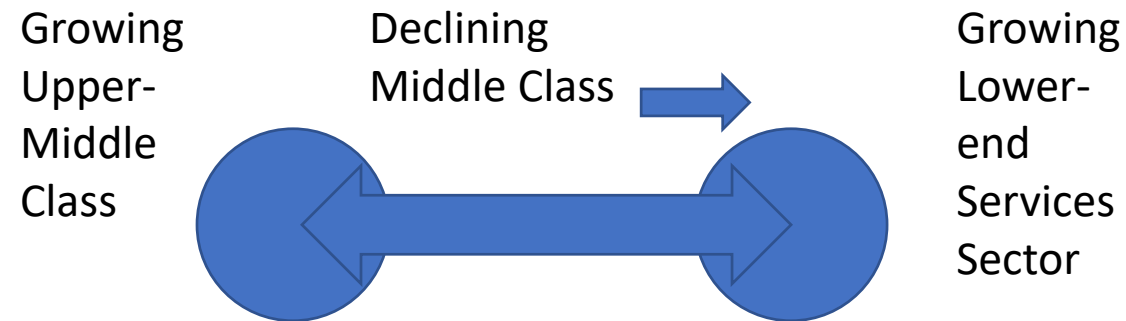
- Technological advances, especially in IT, are putting many quality jobs out of reach for workers who didn't get the proper skills and training.

- *We looked at workforce needs in 3 large sectors, 30% of US employment --*

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**
- **Coronavirus** hit some key sectors, for ex., aircraft production
  - But need more resilient supply chains – some reshoring? Flexible mfg. means new mfg. technologies so new skills for the workforce
- 2+m mfg. jobs will open up from **aging demographics**
- **Advanced manufacturing** will require higher skills

2) Retail: An ongoing social disruption

- **2005:** US <u>overbuilt</u> with 6x more retail sq.ft. as any European nation; 50% more per capita than Canada

- **2008:** Economic crash led to "<u>discount model</u>" of dumbing down the workforce, emptying stores of staff

- **2015:** <u>Warehousing and robotics </u>provide further disruption

- **2020:** <u>Coronavirus</u> forced massive closings, online take-off

- **New Model?** Sales clerk as personal advisor
  - "<u>Omni-channeling</u>" – online/face-to-face entry
  - <u>Higher skills, IT fluent, guide customer </u>through product options
  - How to train? <u>Train the first level managers</u>

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: **default credential?**
- 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
- 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
- Becoming widespread and can be optimized with blended learning
- *Online is a way to scale-up to meet the changes from coronavirus*
- 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 -
- those fluent with MOOCs were prepared for CV19, most weren't
- if online is to scale, the learning lessons need to be absorbed

- ***Bite-sized chunks*** – 10 Minute Segments and the mind-wandering problem
  - Enaber: Online

- ***Mind and Hand*** – hands-on learning – examples:
  - Generative Learning
  - Tactile and Active Learning
  - Blended Learning
  - Enabler: VR/AR, prototyping technologies

- **New Delivery Modalities**
  - Online and Solving the Access Problem
  - Enablers: Online Platforms with broadband access, MOOC's, certificates, Open EdX

- **Content** – *Formal*, I*nformal*, *Professional* – online can be geared to each

- **Pedagogy** opportunities and particular **EdTech opportunities:**
  - AI and digital tutors – personalized education
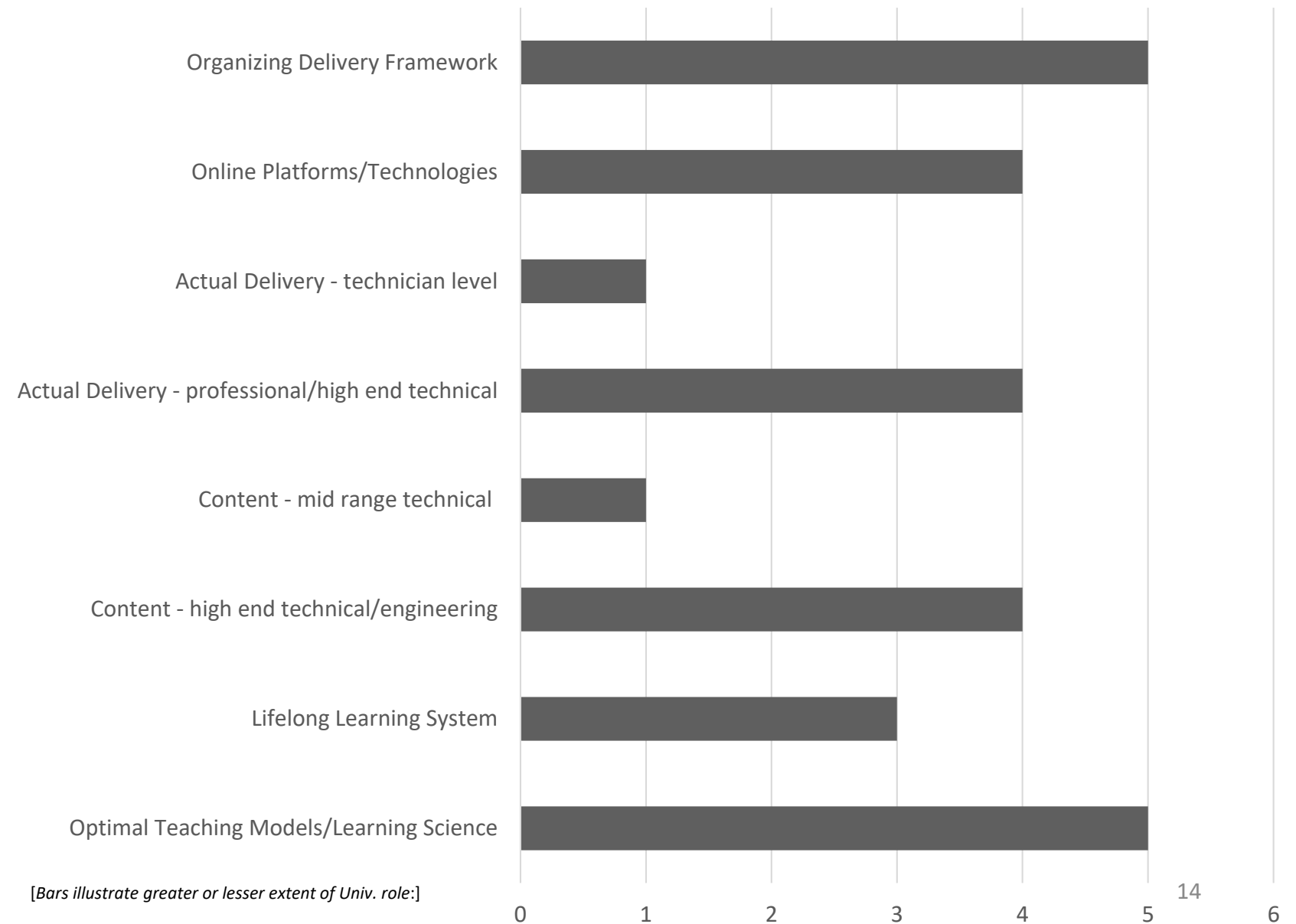 - Digital certificates and badging (blockchain)

Question: What can a University do?

What is the University Role?
Roles in Different Areas:
("notional" chart)

Area	Extent
Organizing Delivery Framework	5
Online Platforms/Technologies	4
Actual Delivery - technician level	1
Actual Delivery - professional/high end technical	4
Content - mid range technical	1
Content - high end technical/engineering	4
Lifelong Learning System	3
Optimal Teaching Models/Learning Science	5

[Bars illustrate greater or lesser extent of Univ. role:]

14

Policy Implications

- **New education technologies** - need development and implementation – VR/AR, gaming, digital tutors/AI – DOD role

- **Short Courses** - BUT must connect to CC certificates, degrees (NSF ATE dev. models, DOL workforce bds.)

- **"Trifecta"** - CC programs for CC students, plus incumbents, HS students (NSF ATE, Dept. of Ed, states)

- **Apprenticeships or "Apprenticeship Light"**- youth and CC – in fields that have clear lines for increased responsibility and wages, er-ee agreements (DOL)
  - Need for actors to coordinate: CC's, employers and regional associations, state gov't

- **CC completion rate**

- **Technical and Comprehensive HS's** – state role

- **Expanded employer role** – appren./training, standards

- **New curriculum for advanced fields** – start with adv'd mfg. – Adv'd Mfg. Institutes/DOD Mantech/DOE/states

- **Unifying efforts at the state level** – states – across Labor/Ed

- **Labor market Information system** – DOL

15

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*
- *Coronavirus brought home the importance of workforce education in addressing our inequality – will we act?*

Thank You!