# PathTech LISTEN:
## Mixed Methods Longitudinal Investigations of Students in Technician Education (DUE #1801163)

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# Project Team

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# PathTech Philosophy

**PathTech** aims to conduct targeted research on educational and employment pathways into advanced technology degree programs and careers in conjunction with high schools and community colleges.

As the need for a skilled technology workforce continues to grow, understanding pathways to and from technician education programs and the technology workforce is vital to sustain workforce development, improve student/worker life chances, and stabilize local economies.

# PathTech Projects

## PathTech Tampa Bay (DUE #1104214, 2011-15)

A holistic examination of pathways into and out of high school career and technical education career academies, community college advanced technology programs, and manufacturing and high-tech jobs in the Tampa Bay area.

## PathTech LIFE (DUE #1501999, 2015-19)

A national survey of students enrolled in community college advanced technology programs. The survey includes data from 3,216 students at 96 colleges in 38 states and 3 US territories.

Longitudinal follow-up interviews and a survey of a sample of PathTech LIFE respondents from a variety of backgrounds.  All were enrolled at a 2-year college in 2017/18 in engineering technologies, advanced manufacturing, micro & nano technologies, energy & environmental technologies or related fields.

**Wave 1** – 96 interviews on background, college experiences, and current status

**Wave 2** – 85 interviews on COVID crisis and current status

**Wave 3** – Fall 2023 Survey (N = 1000) on educational and employment status will serve as a pilot survey for future longitudinal research.

PathTech LISTEN Findings and Key Themes

Implications for Technician Education

Breakout Activities

Concluding Discussion
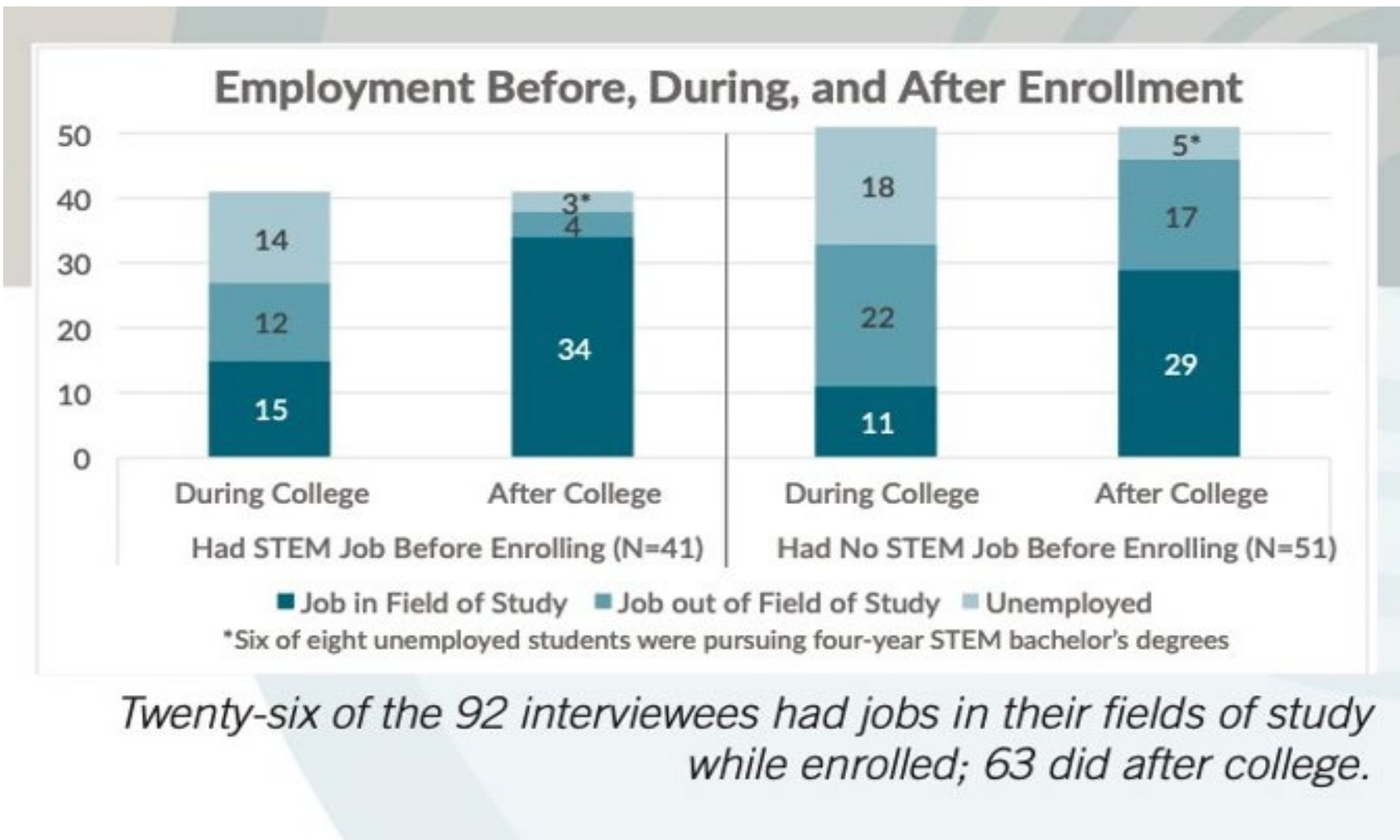
Students took diverse pathways into technical education: whether they came straight from high school, were switching careers, or looking for an applied credential, among many other options.

**Employment Before, During, and After Enrollment**

| | During College | After College |
|---|---|---|
| **Had STEM Job Before Enrolling (N=41)** | Unemployed: 14, Job out of Field: 12, Job in Field: 15 | Unemployed: 3*, Job out of Field: 4, Job in Field: 34 |
| **Had No STEM Job Before Enrolling (N=51)** | Unemployed: 18, Job out of Field: 22, Job in Field: 11 | Unemployed: 5*, Job out of Field: 17, Job in Field: 29 |

■ Job in Field of Study   ■ Job out of Field of Study   ■ Unemployed

*Six of eight unemployed students were pursuing four-year STEM bachelor's degrees

*Twenty-six of the 92 interviewees had jobs in their fields of study while enrolled; 63 did after college.*

PathTech LISTEN
Understanding **path**ways in advanced **tech**nologies.

# Key Theme: Work-Based Learning (WBL)

- Over 1/3 participated in internships, apprenticeships, or co-ops, mostly connected to their program, but some were before enrollment and some were from outside the US.

- WBL helped students connect technical skills to work in practical settings.

*I learned how to double-check everything before I turned it into my boss. I learned how to get up every morning and go to work at 7:00 AM. I learned how to talk to clients, and my boss, and how to carry myself. Here it's construction, but still. You're in a professional environment. I used to answer the phones too, all that kind of stuff. I'd say that was the main takeaway. I learned technical carpentry skill that I still obviously use day-to-day, but I think starting out as the apprentice, that was the most important thing was just learning how to work, so to speak.*

Participants use three main job search strategies:
- Program-sponsored opportunities (recruiters, internships, and instructor contacts)
- Interpersonal connections (friends or family)
- Online search engines (e.g. Indeed, Craigslist, or Monster)

- Technician education programs excel at growing the workforce and providing technical workers with highly valued skills who thrive in technical careers.

- The majority of students were able to secure a job in their field after finishing their degree program.

# Key Findings: Wave 2 Employment and Enrollment

2-year degree outcomes (N = 84)

- **16 (19%)** non-completers (degree or certificate)
- **5 (6%)** earned certificates
- **26 (31%)** degree and transfer
- **37 (44%)** degree, did not transfer

- **54 (64%)** worked full-time (**52** in their field)
- **15 (18%)** worked part-time/internship/temp (**9** in field)
- **8 (10%)** unemployed, looking for job (**6** in field)
- **7 (8%)** unemployed, not looking

# Key Findings: Wave 2 Non-Completers

**16** had not earned a 2-year degree or certificate:

- **6** left program (**1** full-time job in their field)
- **2** still enrolled
- **2** transferred to another 2-year program (AAS and AA)
- **6** transferred to 4-year STEM (inc. **1** MA)

- **3** work full-time (**2** in their field)
- **3** internship or temp work in their field
- **5** unemployed, looking (**2** for jobs in field)
- **5** unemployed not looking

# Key Findings: Complete Degree and Transferred

**26** earned a 2-year degree and transferred:

- **3** enrolled in 2-year STEM, **1** in apprenticeship
- **19** enrolled in 4-year STEM undergrad (mostly engineering)
- **3** grad students (**1** STEM MA, **1** Engineering, **1** MBA)

- **13** worked full-time (**all** in their field)
- **10** worked part-time or temp work (**6** in their field)
- **2** unemployed, looking for jobs in field (company went bankrupt; break from full-time school)
- **1** unemployed not looking (full-time student)

**5** earned certificates; all work full-time

- **4** with jobs in field, **4** plan to enroll for further education

**37** earned a 2-year degree and did not transfer:

- **33** worked full-time (**32** in their field)
- **2** worked part-time out of their field
- **1** unemployed, looking for job in field (laid off due to COVID)
- **1** unemployed not looking (on military pension)

# PathTech Pilot Longitudinal Survey Topics

Enrollment and Attainment
by Year
- CC certificates or degrees
- Further enrollment
- Majors (CIP codes)

Employment by Year
- Type of job (NAICS codes)
- Dates of employment
- Estimated income

Personal
- Life events
- Challenges
- Changes in life trajectory

Family
- Change in marital status
- Children/dependents
- Caregiving responsibilities

Few community colleges have formalized alumni tracking networks:

- Tracking is typically informal through surveys, social media, phone calls, and emails.
- Other schools are interested in tracking alumni, particularly employer and salary information.

*"I am uncertain why the institution as a whole does not do a better job of tracking alumni. It has been a topic of discussion, but never seems to gain any traction. Our department does not have the resources available to track alumni."*
--community college faculty member (May 2020 survey)

# Questions?

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