An Assessment of STEAM Careers and Workforce Development in Northern New Mexico

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Why Is Assessing STEAM Careers Important?

- Societal importance
- NM STEM degrees awarded are disproportionate to non-STEM degrees awarded
- NM in state STEM hiring is below the national average
- STEAM careers are available and growing

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PROJECTED GROWTH OF OCCUPATIONS 2019-2029

Occupation Category	Employment (thousands)		Change, 2019-29		Median Annual Wage, 2019
	2019	2029	Number (thousands)	Percent (%)	Annual Wage, 2019
Total, all occupations	162,796	168,835	6,039	3.7	$39,810
STEM occupations	9,955	10,753	798	8.0	$86,980
Non-STEM occupations	152,841	158,082	5,241	3.4	$38,160

Last updated on September 1, 2020 - takes into consideration the issues caused by COVID-19
Data from the Bureau of Labor Statistics 2020

What are Career Pathways?

- General steps an individual follows
- Individuals develop their own pathway
  - Many different career pathways
  - Pathways organized in clusters
- What influences a career pathway?
  - Interest in opportunities
  - Perceived available opportunities

Infographic by Reilly Norum
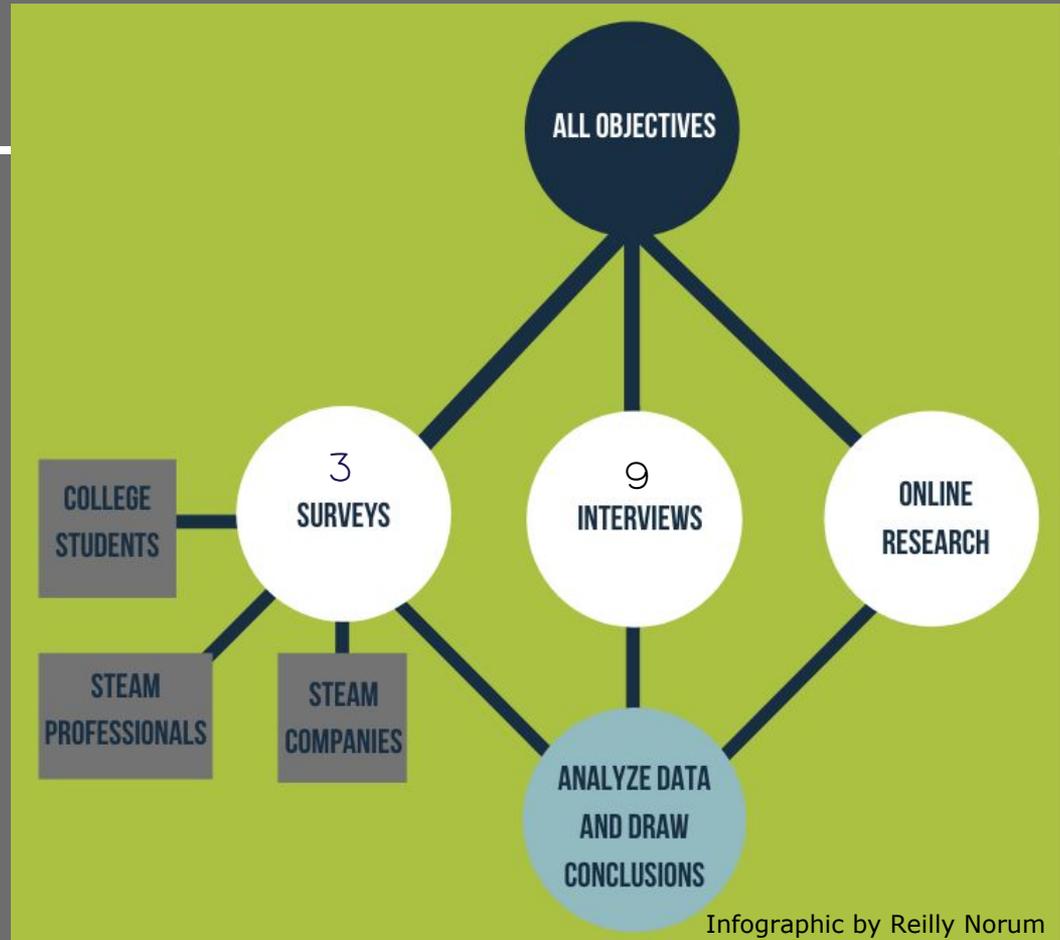
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Our Project Goal

Aid the Community Learning Network by documenting what inspires individuals to pursue STEAM career pathways, what local career opportunities are available, and what methods can connect individuals and the available STEAM career opportunities.
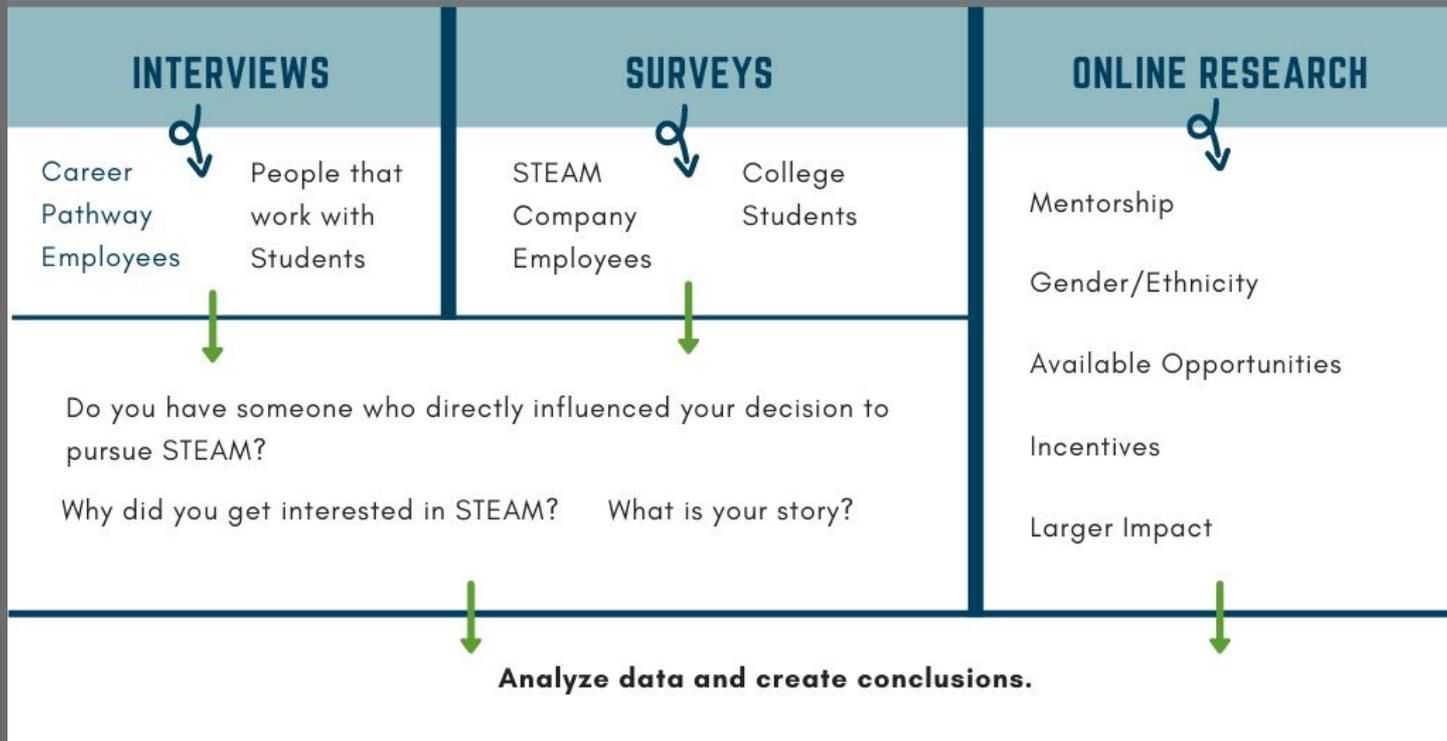
Methodology

- Surveyed 17 college students
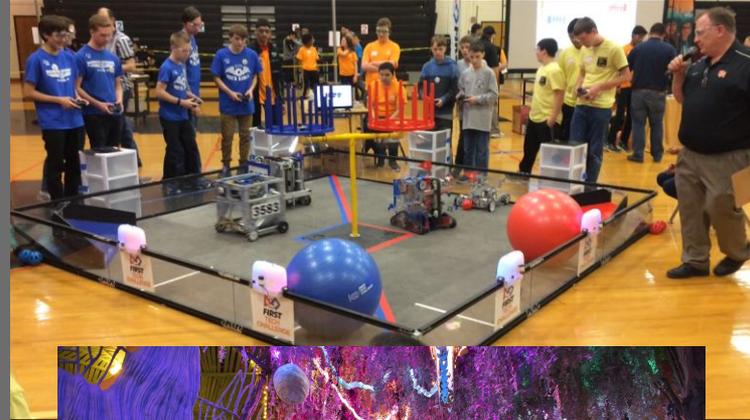- Surveyed 8 professionals
- No responses from STEAM companies

Infographic by Reilly Norum

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OBJECTIVE #1

What inspires individuals to pursue STEAM career pathways?

INTERVIEWS

Career Pathway Employees

People that work with Students

Do you have someone who directly influenced your decision to pursue STEAM?

Why did you get interested in STEAM?   What is your story?

SURVEYS

STEAM Company Employees

College Students

ONLINE RESEARCH

Mentorship

Gender/Ethnicity

Available Opportunities

Incentives

Larger Impact

Analyze data and create conclusions.

Infographic by Thad Zuber and Reilly Norum
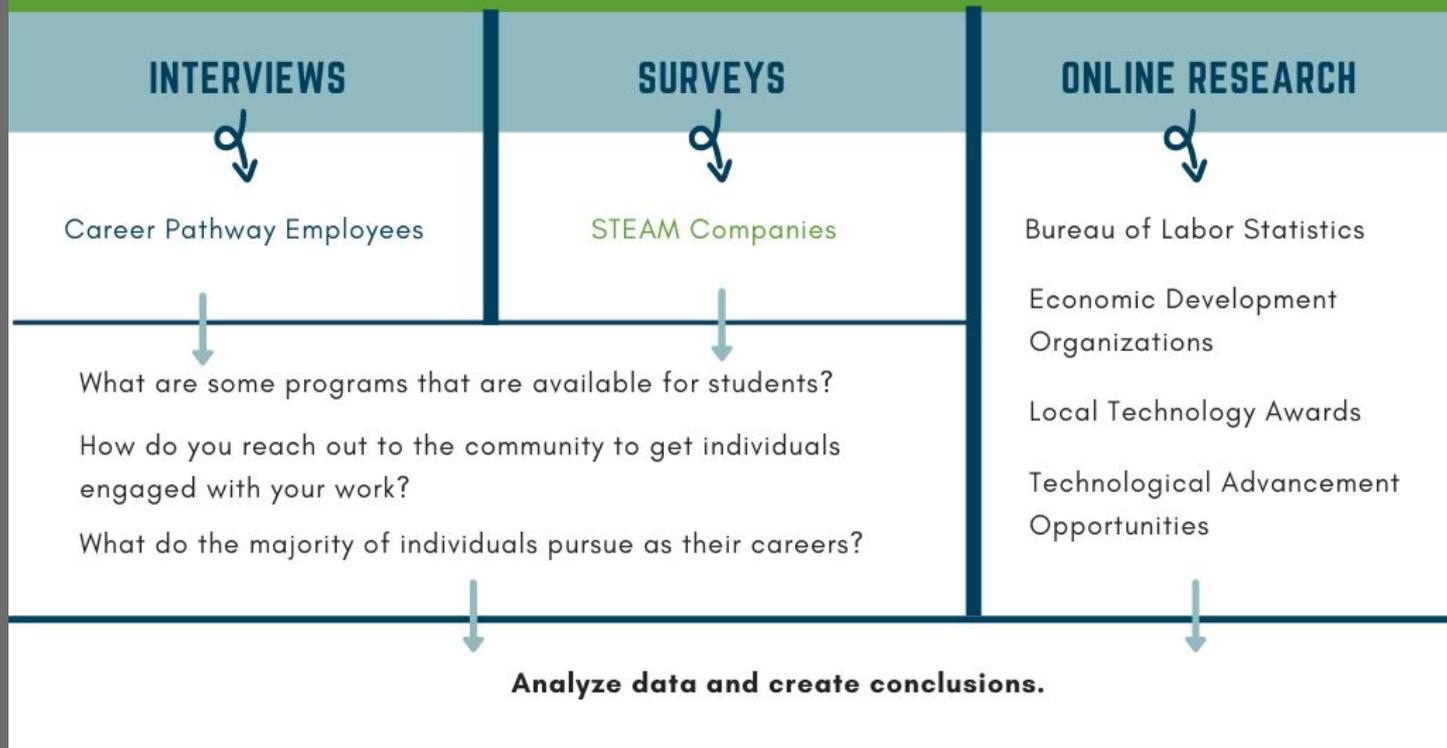
Objective #1 Findings

Why do people pursue STEAM fields?

- Interest starting from a young age
  - Usually involves a role model
  - Clubs/ other activities encourage this interest
- Identifying a local issue
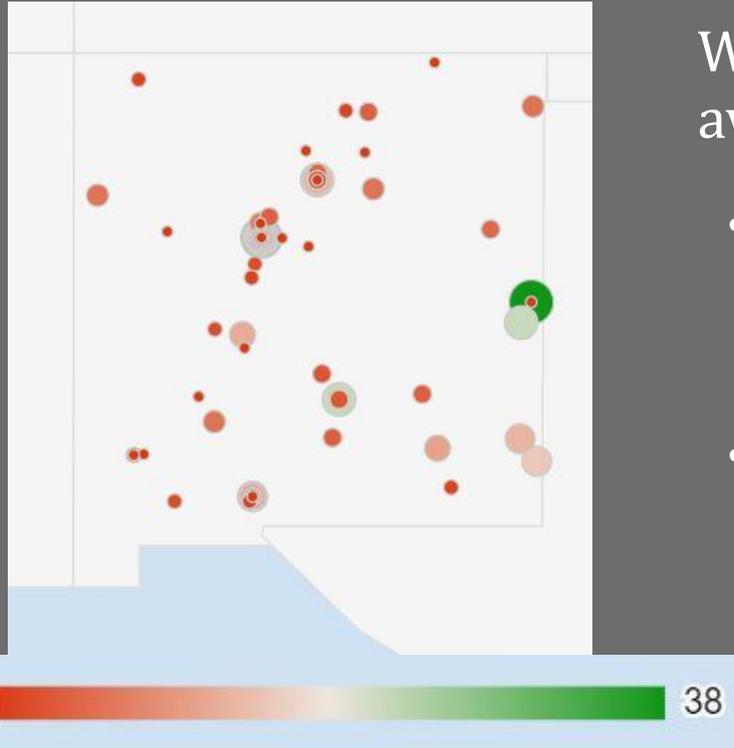 - STEAM as a solution to these problems

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OBJECTIVE #2   What STEAM career opportunities are available in/around NNM?

INTERVIEWS

Career Pathway Employees

What are some programs that are available for students?

How do you reach out to the community to get individuals engaged with your work?

What do the majority of individuals pursue as their careers?

SURVEYS

STEAM Companies

ONLINE RESEARCH

Bureau of Labor Statistics

Economic Development Organizations

Local Technology Awards

Technological Advancement Opportunities

Analyze data and create conclusions.

Infographic by Thad Zuber and Reilly Norum

Objective #2 Findings

What STEAM career opportunities are available?

- Distribution of careers- NMCC Survey
  - ~25% of companies in or near Albuquerque
  - ~10% of companies in or near Santa Fe
- Notable local STEAM industries
  - Film
  - Drones/ aerospace
  - Satellites
  - Directed energy/ defense
  - Bioscience

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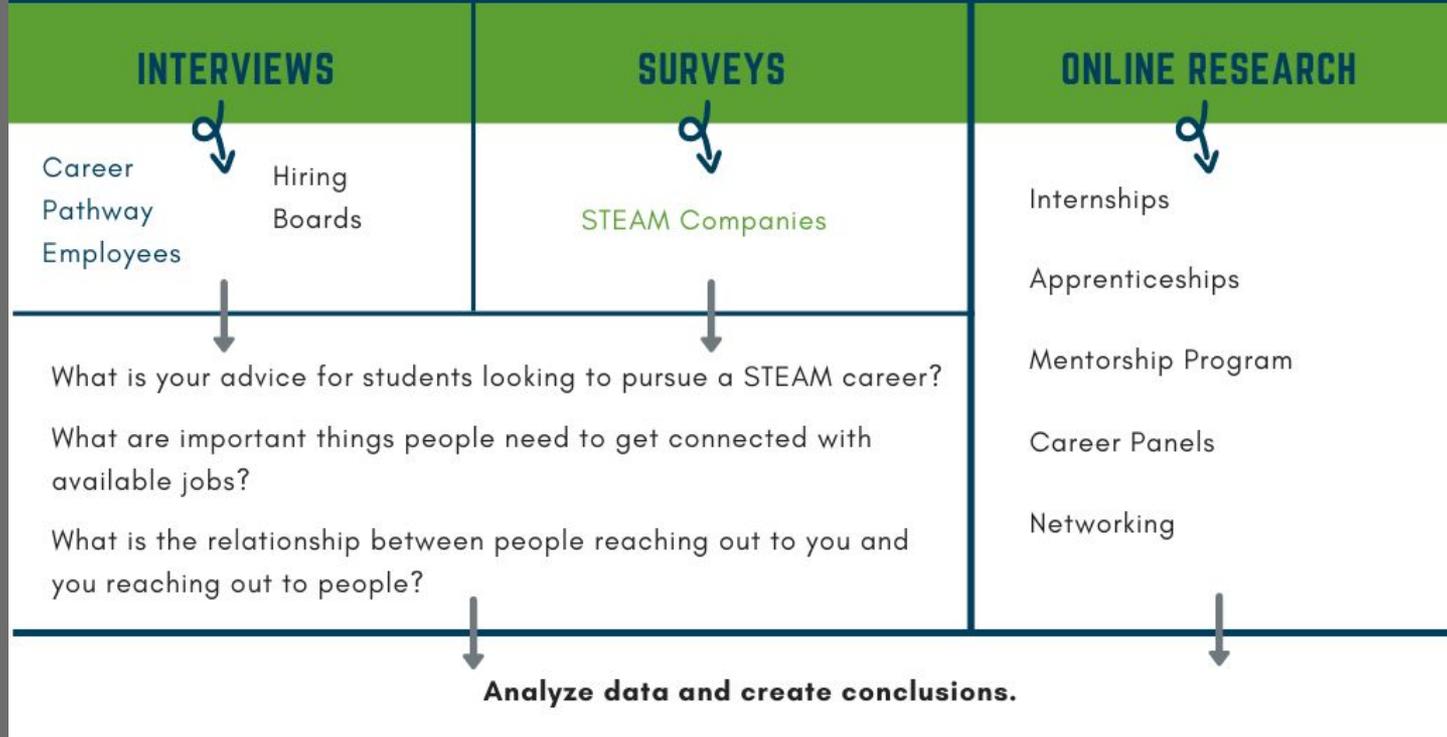
Objective #3 Findings

How do we connect the two?

- Mentors
  - Facilitate career development
  - Provide feedback on students' performance
- Career Technical Education
  - Gives students direct connections to workforce
  - Develops relevant technical skills
  - Promotes growth of soft skills

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OBJECTIVE #3 — What methods best connect individuals and available STEAM opportunities?

INTERVIEWS

Career Pathway Employees   Hiring Boards

What is your advice for students looking to pursue a STEAM career?

What are important things people need to get connected with available jobs?

What is the relationship between people reaching out to you and you reaching out to people?

SURVEYS

STEAM Companies

ONLINE RESEARCH

Internships

Apprenticeships

Mentorship Program

Career Panels

Networking

Analyze data and create conclusions.

Infographic by Thad Zuber and Reilly Norum

Our Recommendations

- Early STEAM education
- Present STEAM as a means of problem solving
- CTE/ Internships/ Apprenticeships
- Mentors/ Role models
- Future research
  - Contact students regarding STEAM interest
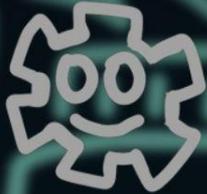
Our Conclusions

- Importance of STEAM industries in NM
- Importance of STEAM industries in the US

Our Website

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Sponsor Website: https://www.communitylearningnetwork.org/

Additional Info.: https://www.nmsteamhub.com/

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STEAM Promotion Strategies Used

- Career panels/hiring events
- In school/after school programs
- Research opportunities
- Community Colleges

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Colleges Surveyed

New Mexico HIghlands University

Northern New Mexico College

Central New Mexico Community College

UNM Health Sciences Rio Rancho Campus

University of New Mexico (Los Alamos)

University of New Mexico (Taos)

Luna Community College

Santa Fe Community College

Student Survey Responses

Activities that Influenced Them

MESA (Mathematics, Engineering and Science Academics

N/A

AP Courses

I participated in the Science Bowl one semester.

Robotics Club

2018 Summer Physics Camp for Young Women

Doing an internship at First Choice Community Healthcare for one summer as a senior.

MESA (Mathematics ,Engineering, Science Achievement)

Annual Supercomputing Challenge

I think the major driving force in my decision to study in the field of science was the desire to fix out current world. The millennial generation inherited a terrible economy (recession), terrible education system as well, climate change, and now Covid 13. I think we have a huge task ahead of us to try to fix this for the next generation and a good education in STEM can help achieve this.

My uncle influenced me to pursue biology because I want to become a pediatrician and being a STEM biology major will guide me in that direction.

My engineering teacher became a very impactful mentor and helped me look at the wide range of choices within and outside engineering

Teacher-Student relationship. Invited me to take part of extracurriculars in STEM. Introduced me to UNIX, Networking, and Coding different types of projects (web-based, android, etc.).

People that Influenced Them

Companies of Professionals Surveyed

- NTx (Nature's Toolbox)
- New Mexico Institute of Mining and Technology
- Resilient Solutions
- Vibrant Corporation

Interview Personnel

Organization (no particular order)

- Franklin Hampshire Workforce Board
- Los Alamos National Laboratory
- Monte del Sol Charter School
- Worcester Public Schools
- Worcester Polytechnic Institute
- Masshire Central Region
- New Mexico State Chamber of Commerce

Title (no particular order)

- Director of Innovation Pathways
- Executive Director
- Community Outreach Specialist
- President
- Mentorship Director
- President & CEO

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TOP FIVE CAREER CLUSTERS BY HIGHEST WAGES

Workforce Region(s): Northern, Central

Cluster	Annual Openings	↓ Median Wages	Projected New Jo...	Growth Rate
Science, Technology, Engineering...	1,166	$118,787	1,319	11%
Information Technology	1,035	$64,737	1,558	14%
Finance	1,813	$53,539	877	5%
Health Science	5,347	$53,145	7,100	13%
Business Management & Admini...	10,955	$47,555	-511	-1%

*** = Insufficient Data

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TOP FIVE CAREER CLUSTERS BY LARGEST PROJECTED GROWTH

Workforce Region(s): Northern, Central

Cluster	Annual Openings	Median Wages	Projected New Jo...	↓ Growth Rate
Human Services	6,236	$17,550	8,651	23%
Information Technology	1,035	$64,737	1,558	14%
Health Science	5,347	$53,145	7,100	13%
Science, Technology, Engineering...	1,166	$118,787	1,319	11%
Architecture & Construction	5,774	$44,073	4,468	10%

https://www.careerpathways-nm.com/ExploreYourDistrictArea

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Interview Quotes

- "At the end of the day, they want soft skills, but they want credentials. Charisma and credentials."
- "The state of New Mexico...we don't have an economic strategy as a state."
- "For a CTE program to work, it's really gotta be aligned with market demand and it needs to be demand driven, not supply driven."
- "You want to have the technical capacity and the ability to kind of get that, but the soft skills are the other piece."

Interview Quotes Cont.

- "It starts very early. It starts in elementary school and how we teach."
- "We took 6 different legislators to the industrial park outside of Kirtland Air Force Base and met with a lot of folks doing... all sorts of defense related and technology related companies and talked to them about their workforce, and most of them were recruiting or had interns form the east coast."
- "You have to have conversations with kids and see what they're interested in."
- "We are now referring to them as essential skills, soft skills just didn't seem to do it for us."

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