What, Why, and How PRE-CON WORKSHOP





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What, Why, and How PRE-CON WORKSHOP





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What, Why, and How PRE-CON WORKSHOP





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1. What

What makes impact evaluation different?

2. Why

Why and when to consider impact evaluation?

3. How

What strategies can you use for impact evaluation?

4. Data Sources

Examples of where to gather data from Candiya Mann and Ben Reid

5. Your Turn

Build your own impact evaluation

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INTRODUCTIONS

Discuss which statement below you find more convincing and why.



98% of participants reported being satisfied or very satisfied with the new lab materials. 90% said they would recommend the course to a friend.



Students who used the new lab material were three times more likely to pass the licensing exam than those who used the old lab materials in their preparatory courses.



1,500 students used the new lab materials in 2018.

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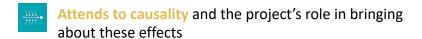
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IMPACT EVALUATION







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LONG TERM EFFECTS

Outcomes

"The likely or achieved shortterm and medium-term effects of an intervention's outputs" (OECD, 2002)

Impact

"Positive and negative, primary and secondary longterm effects produced by a development intervention, directly or indirectly, and intended or unintended" (OECD, 2002)

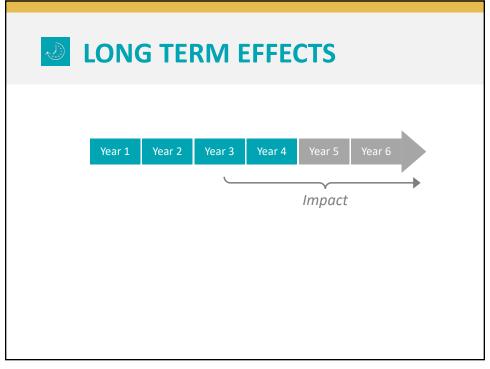
Organization for Economic Co-operation and Development. (2002). Glossary of key terms in evaluation and results-based management. Retrieved from https://www.oecd.org/dac/evaluation/2754804.pdf

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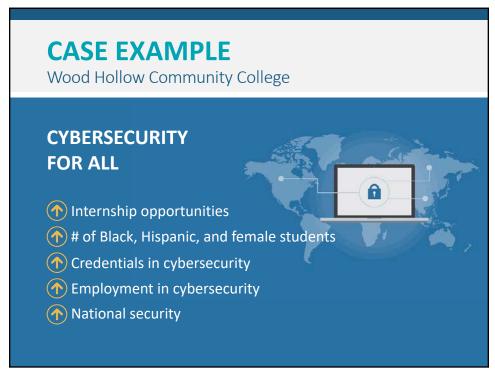
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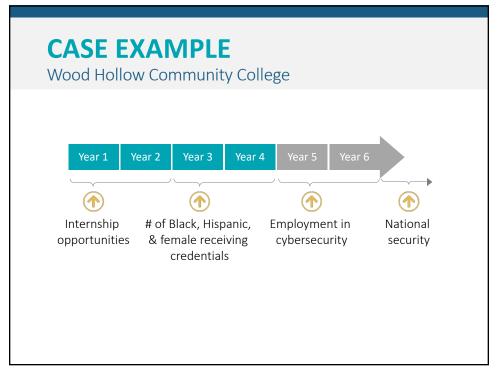
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IMPACT OR PROCESS?

Are these evaluation questions asking about process or impact?

To what extent did the demographics of those place internships match the target population?

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IMPACT OR PROCESS?

Are these evaluation questions asking about process or impact?

To what extent did the number of students credents in cybersecurity increase because of the prompact activities?

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IMPACT OR PROCESS?

Are these evaluation questions asking about process or impact?

To what extent were students satisfied with their internship experience?

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IMPACT OR PROCESS?

Are these evaluation questions asking about process or impact?

To what extent did business partners sufficiently exists in partnerships to create internship opportunity of the company of th

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IMPACT OR PROCESS?

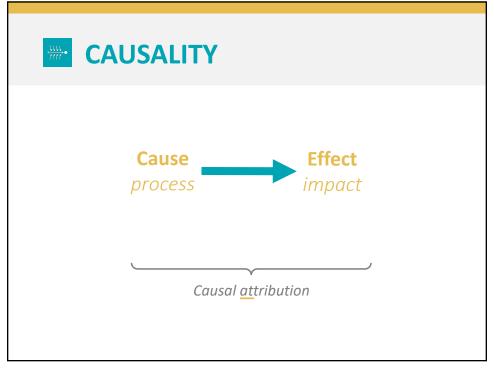
Are these evaluation questions asking about process or impact?

To what extent did Black, Hispanic, and female study s' representation increase in cybersecurity johnned of project activities?

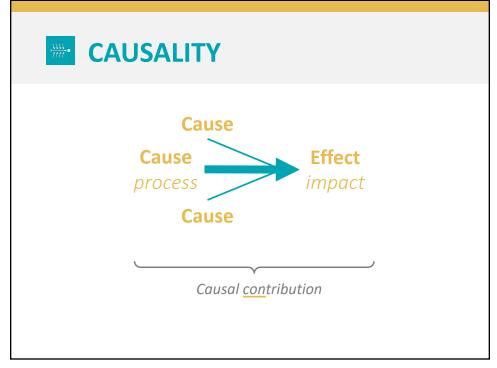
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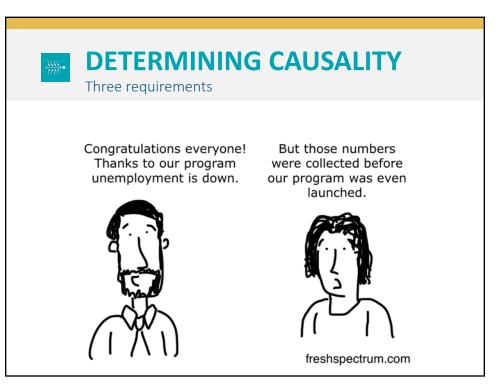


1 Temporal precedence

The potential cause happened before the effect

Web Center for Social Science Research Methods. https://socialresearchmethods.net/kb/causeeff.php

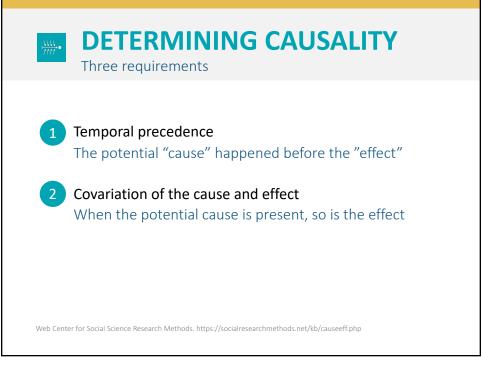
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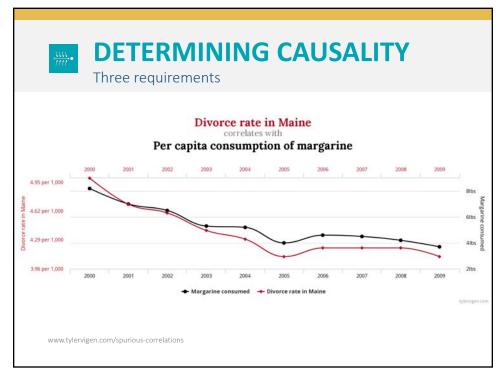
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Three requirements



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Three requirements

- 1 Temporal precedence
 The potential "cause" happened before the effect
- 2 Covariation of the cause and effect
 When the potential "cause" is present, so is the effect
- 3 No plausible alternative explanations

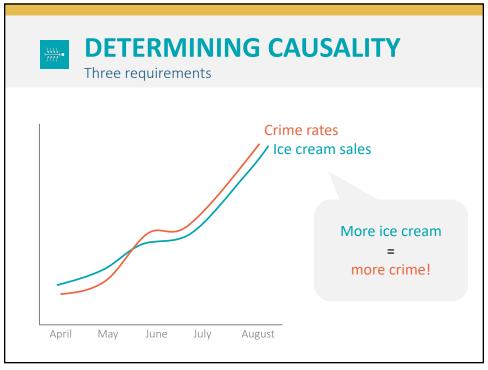
 Nothing else could have explained the effect

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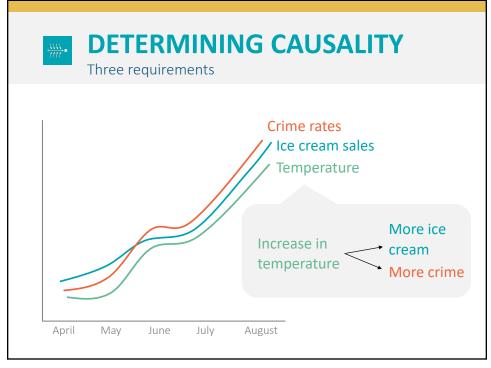
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EVALUATIVE EVIDENCE



98% of participants reported being satisfied or very satisfied with the new lab materials. 90% said they would recommend the course to a friend.



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1,500 students used the new lab materials in 2018.

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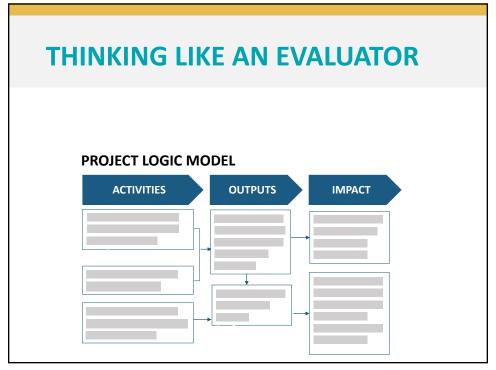
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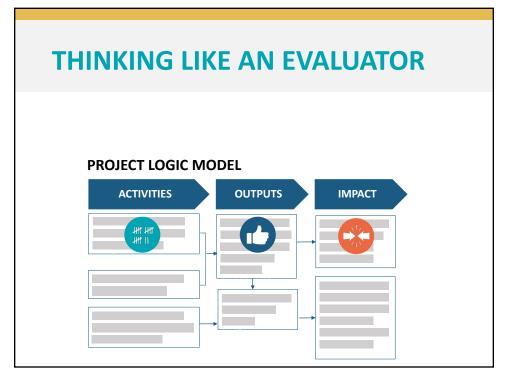
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WHEN TO DO IMPACT EVALUATION? WHEN NOT TO DO?

What factors might lead you to pursue an impact evaluation?

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WHEN TO DO IMPACT EVALUATION? WHEN NOT TO DO?

What factors might steer you away from pursuing an impact evaluation?

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DETERMING CAUSALITY

Three requirements

- 1 Temporal precedence
 The potential cause happened before the effect
- 2 Covariation of the cause and effect
 When the potential cause is present, so is the effect
- 3 No plausible alternative explanations
 Nothing else could have explained the effect

 $Web\ Center\ for\ Social\ Science\ Research\ Methods.\ https://socialresearchmethods.net/kb/causeeff.php$

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HOW TO DETERMINE CAUSALITY?

What strategies could you use to determine whether project activities caused the intended impact?



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CASE EXAMPLE

Wood Hollow Community College

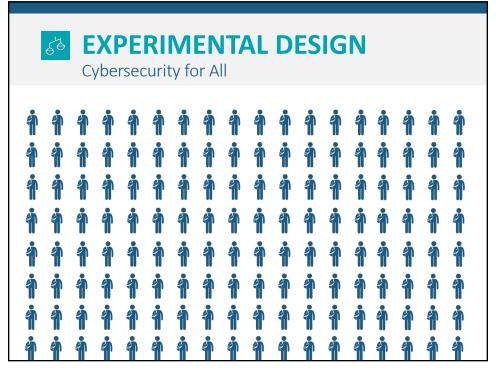
CYBERSECURITY FOR ALL

- 1 Internship opportunities
- # of Black, Hispanic, and female students
- Credentials in cybersecurity
- **(†)** Employment in cybersecurity
- National security

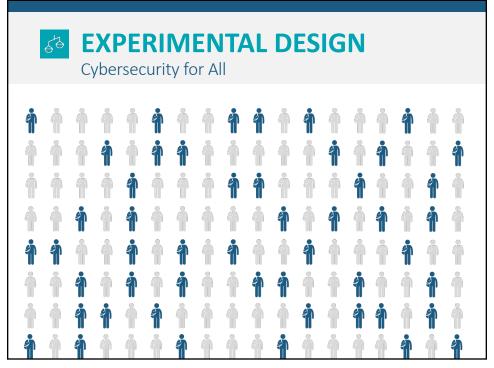
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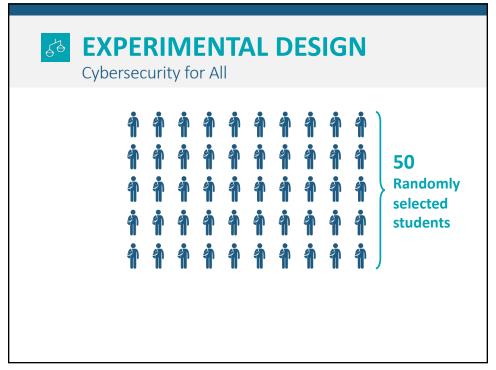
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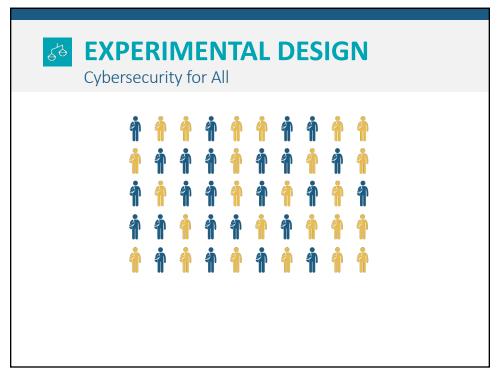
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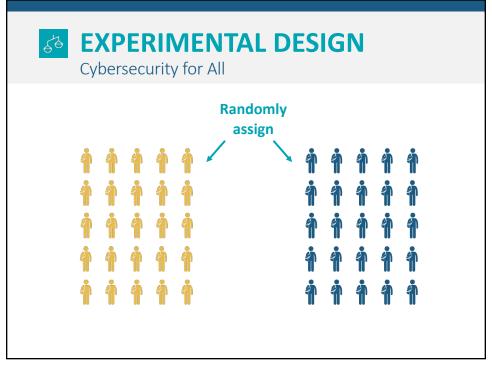
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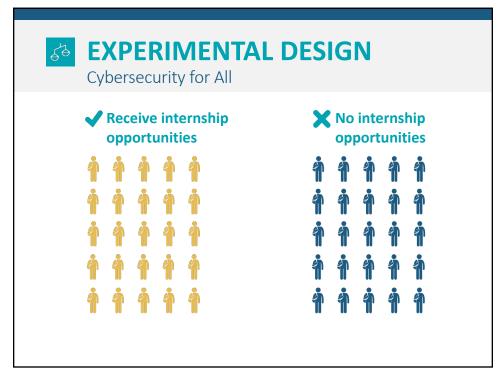
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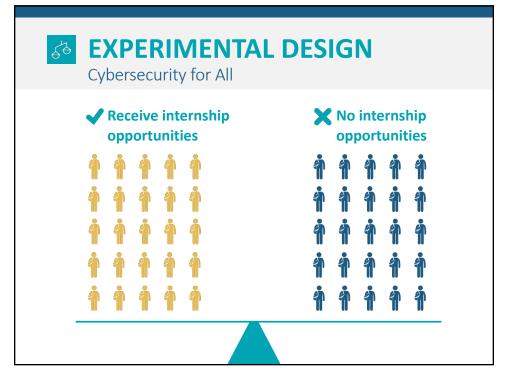
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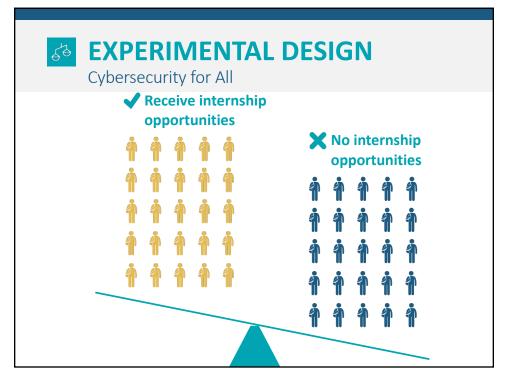
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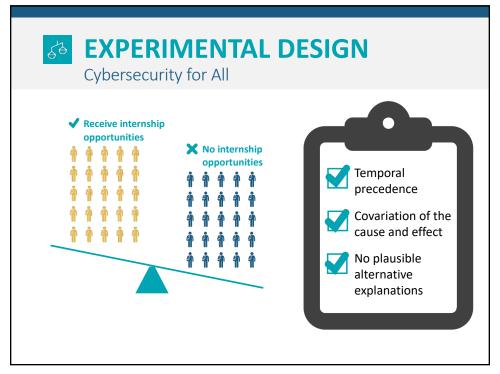
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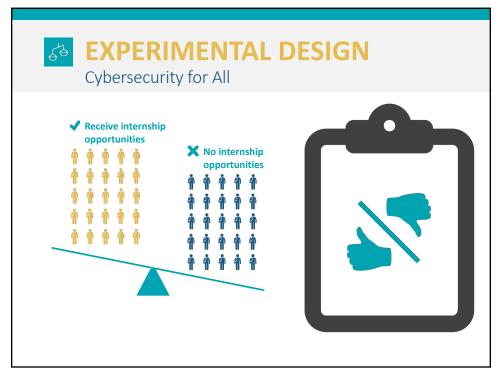
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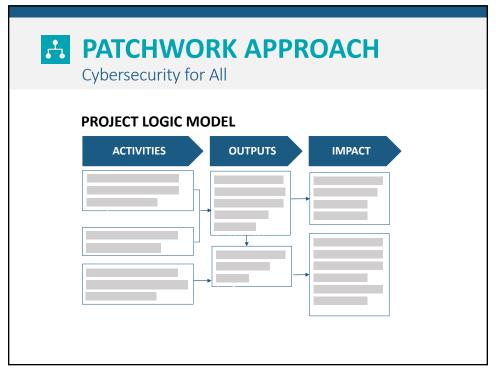
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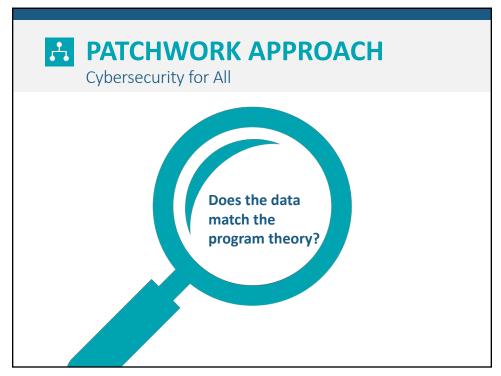
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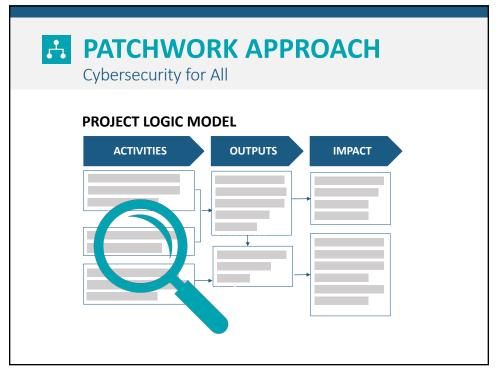
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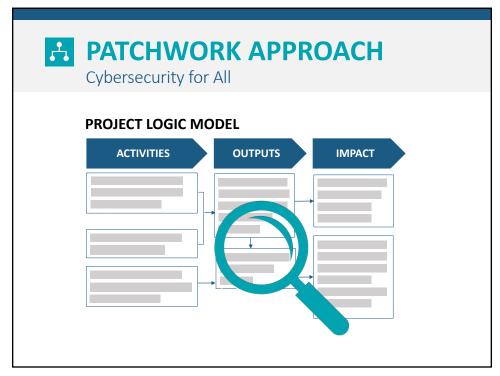
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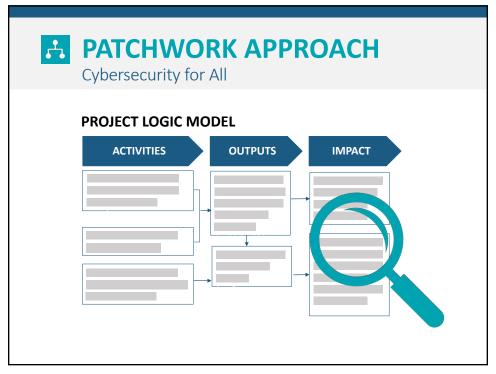
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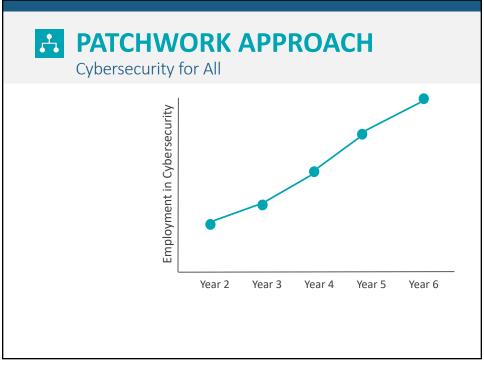
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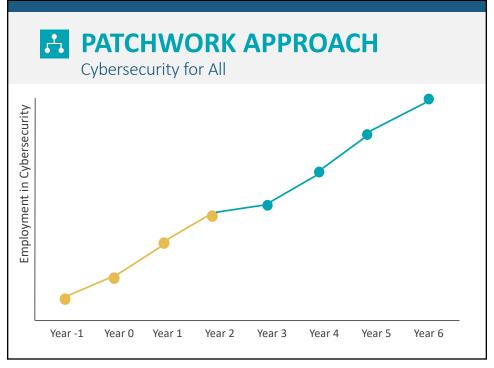
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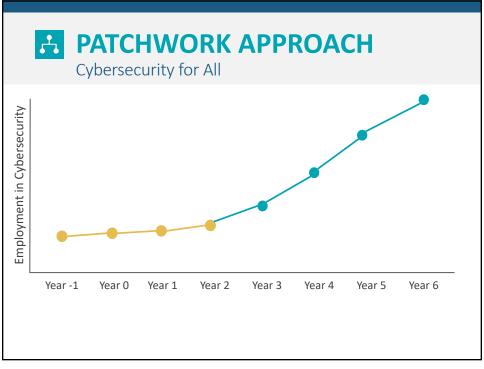
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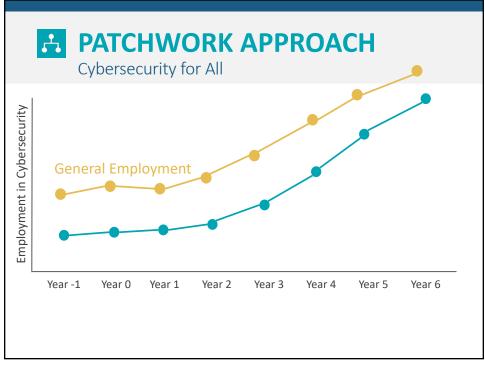
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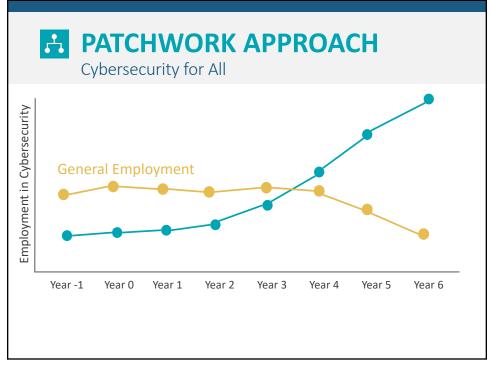
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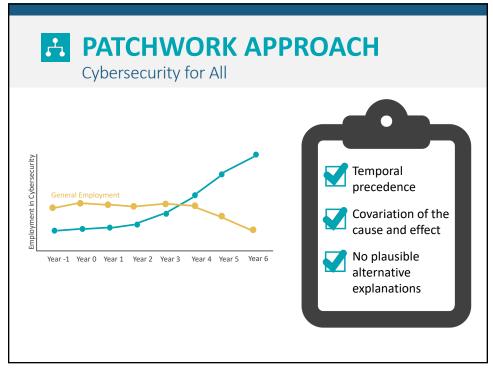
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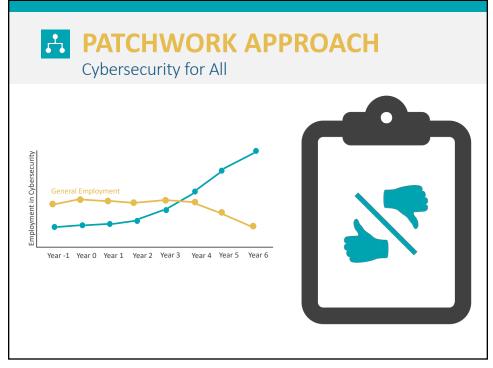
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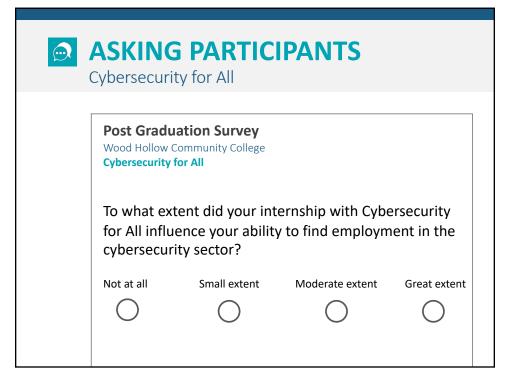
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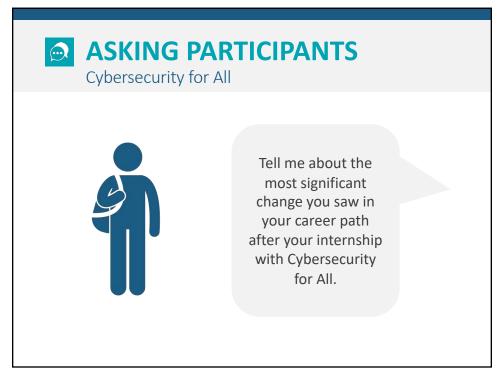
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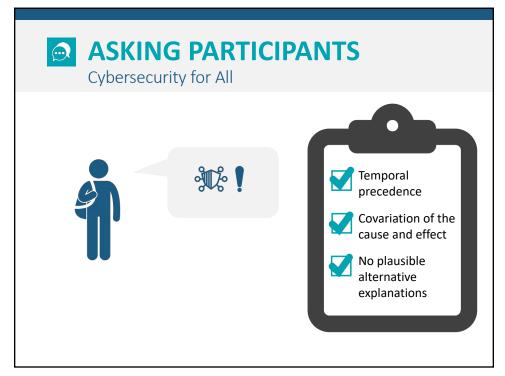
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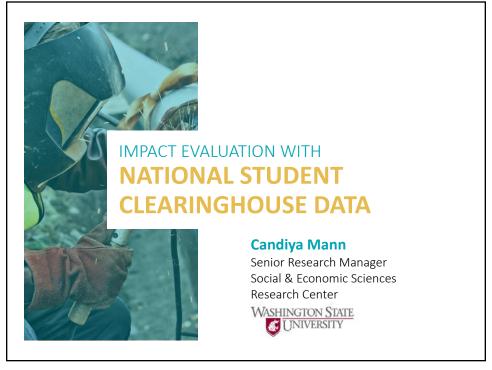
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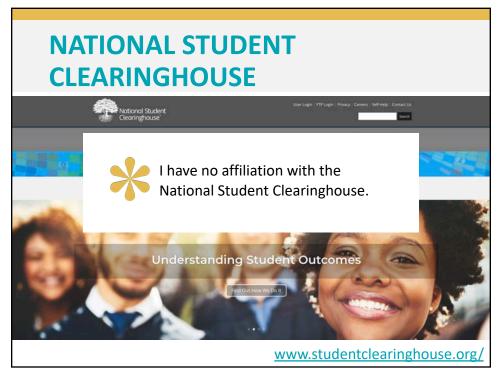
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STRENGTHS Why you might want to do this No email addresses needed! Not self-reported data Nationwide

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WEAKNESSES

Why you might want to think twice

- **6** Privacy concerns
- Only US colleges
- Data analysis required
- No comparison group
- No employment data
- Need student info for matching

Lag

\$ Fee

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STUDENT INFO FOR MATCHING

We used name (first, middle, last) and date of birth

Other options:

- ✓ Address
- ✓ SSN
- ✓ Student ID
- ✓ School ID

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\$ LET'S TALK MONEY

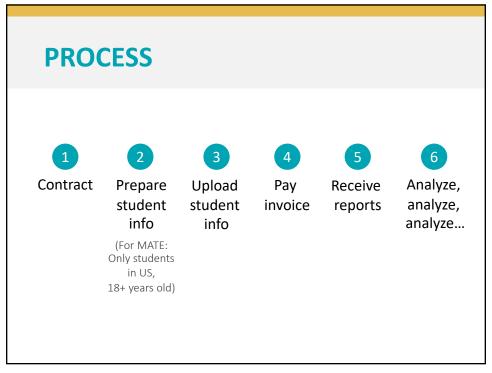
Initial set-up: \$500 Minimum fee: \$425

		Sample	
Price Band	Marginal	Query	Sample
Price Dallu	Rate	Size	Cost
1 - 1,000	1.000	1,000	\$1,000
1,001 - 10,000	0.600	10,000	\$6,400
10,001 - 100,000	0.360	100,000	\$38,800
100,001 - 1,000,000	0.216	1,000,000	\$233,200
1,000,001 & higher	contact NSC		

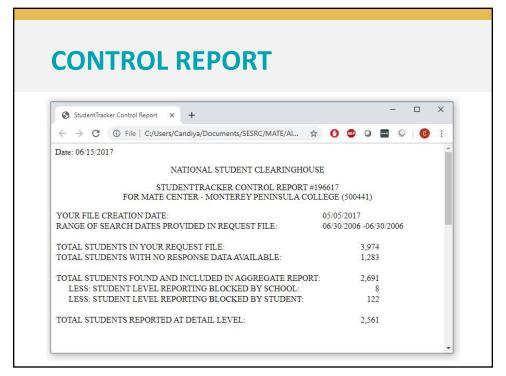
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33 002402-00	COPIAH-LINCOLN		2 Public	MS	0.71%	19	0		19	21	8	

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DETAILED REPORT

One record per student, institution, term $% \left(1\right) =\left(1\right) \left(1$

So. Much. Duplication.

• 24,098 records for 3,974 students

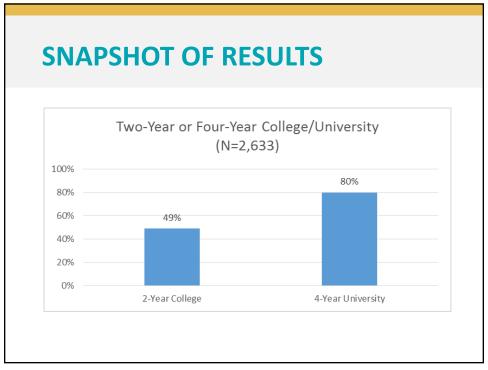
• 1-41 records per student

B	lequeste Return ield		Search Date	College Code/ Branch	College Name	College	2-year / 4	Public / Private	Enrollment Begin	Enrollment End	Enrollment Status	Class	Enrollment Major 1	Enrollment CIP 1	Enrollme nt Major 2	Enrollme nt CIP 2	Graduated?
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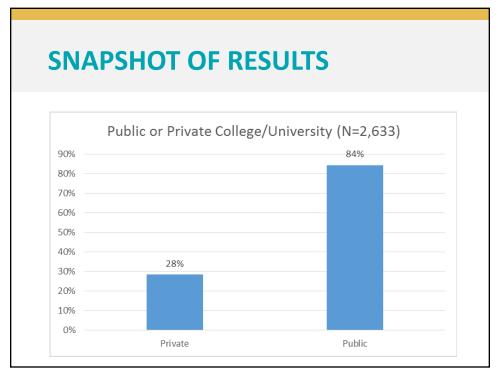
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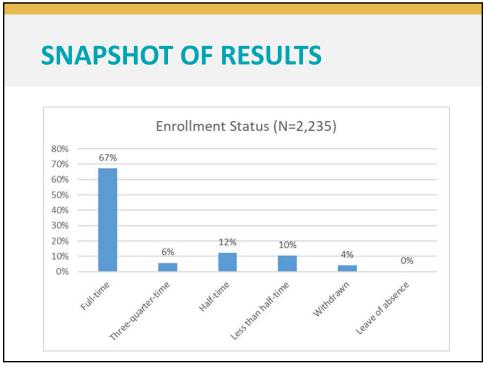
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SNAPSHOT OF RESULTS

Majors

Of 2,633 students

- 1,779 with major
- 1,668 with CIP

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SNAPSHOT OF RESULTS

Majors

Of 2,633 students

- 1,779 with major
- 1,668 with CIP

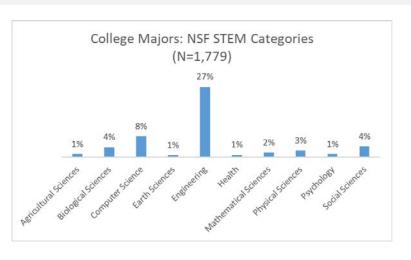
What is STEM? Two approaches:

- 1 Match to NSF CIP Crosswalk for STEM Disciplines = 51% STEM
 - No certificates/AAS degrees
- 2 Hand-code for STEM = 66% STEM

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SNAPSHOT OF RESULTS

Majors



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SNAPSHOT OF RESULTS

Degrees

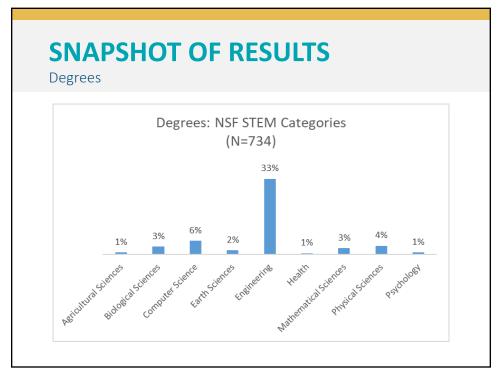
Of 2,633 students

708 students earned 975 degrees/certificates 734 with CIP

What is STEM?

- 1 Match = 57% STEM
- 2 Hand-code = 76% STEM

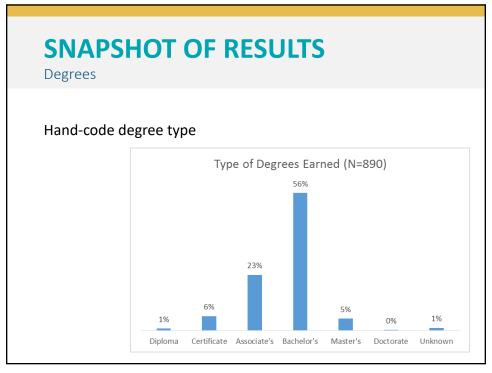
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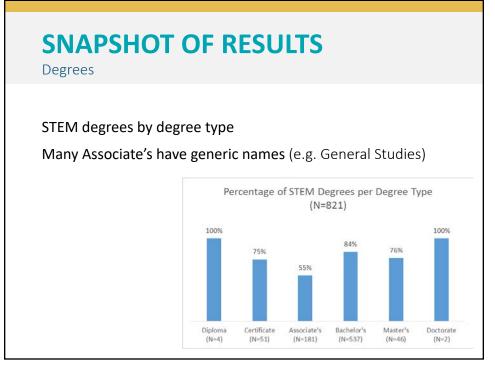
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USING THE RESULTS

Evaluation report

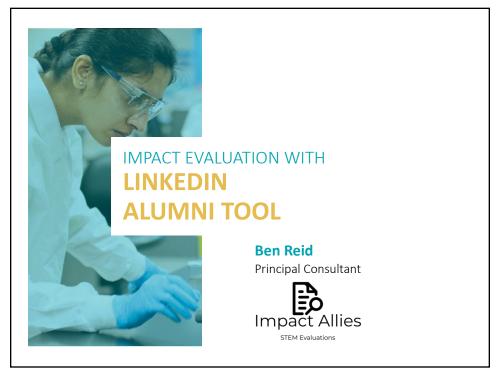
Infographic

Compare/confirm alumni survey

Proposals: NSF, corporate foundations, and others



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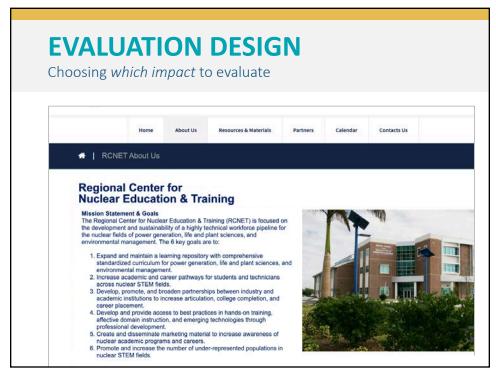
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EVALUATION DESIGN

Choosing which impact to evaluate



Post-program outcomes for students

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EVALUATION DESIGN

Choosing which impact to evaluate

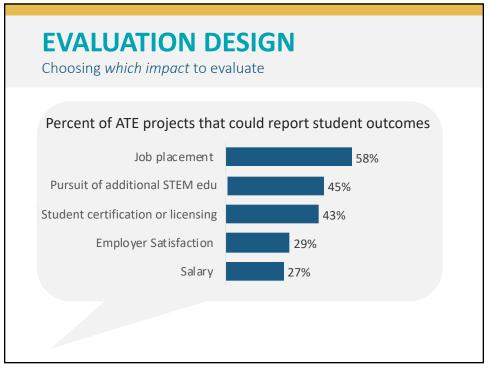
"ATE program stakeholders would like to know more about post-program outcomes for students."

- ATE Annual Survey, 2019

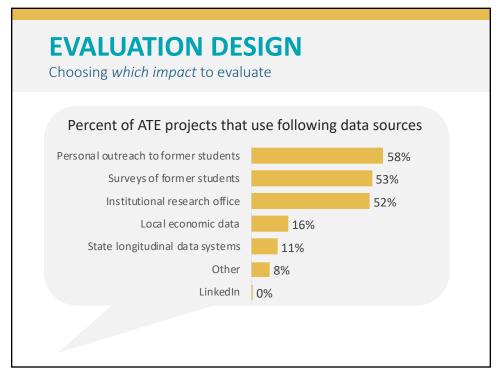
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EVALUATION DESIGN

Choosing which impact to evaluate

Indicator of

success Measurable outcome Evaluation method

1. To what extent has BCNET developed a highly technical workforce pipel

1. To what extent has RCNET developed a highly technical workforce pipeline for the nuclear field of power generation?

Post-program outcomes for students

Percentage of students:

- Working in Energy Industry
- Working in Science,
 Technology, or
 Engineering company
 or position
- 3) Pursued a 4-year college degree

8 year longitudinal study

3 Rounds:

- 1 Survey of former students
- 2 Self-reported information of former students on LinkedIn
- 3 Combined data

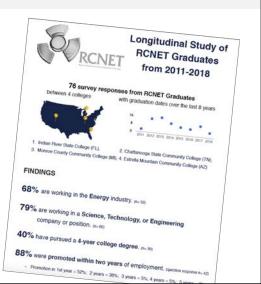
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Survey of former students

(a

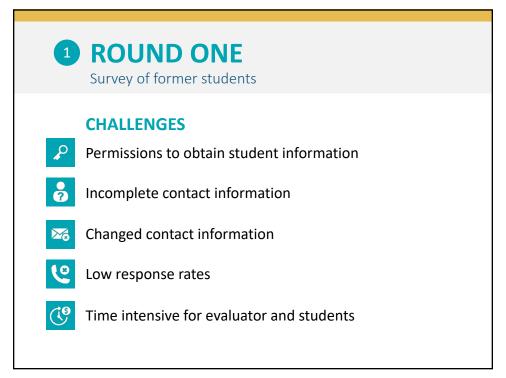
Direct contact with students via email and phone



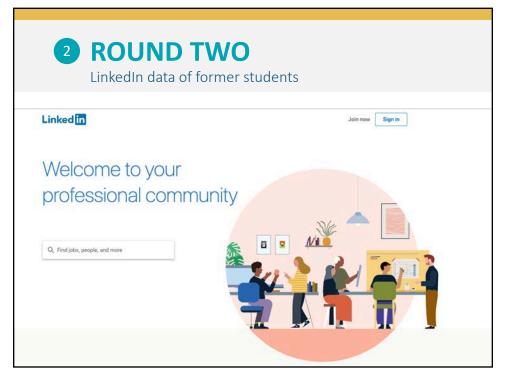
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ACCURACY OF LINKEDIN

20 / 76

Survey respondents have an updated LinkedIn profile 20 / 20

LinkedIn profiles were an exact match to the survey questions

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RELIABILITY OF LINKEDIN

105 / 714

Former students have an updated LinkedIn profile



Best to cross reference a list of names and dates in program

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SNAPSHOT OF RESULTS

	Survey n=76 11% response	LinkedIn n=105 15% response	Combined n=161 (unique responses) 23% response
Working in Energy Industry	68% n=52	64% n=67	65% n=104
Working in STE position or co.	79% n=60	92% n=97	85% n=137
Pursued 4 year degree	40% n=30	30% n=32	32% n=51

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USING THE RESULTS

Longitudinal study sent directly to ATE Lead Program Officer

Evaluation report

RCNET's Annual Report

Proof of concept for new workforce tracking models

Helping partner colleges use LinkedIn



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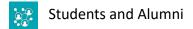
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BIG PICTURE







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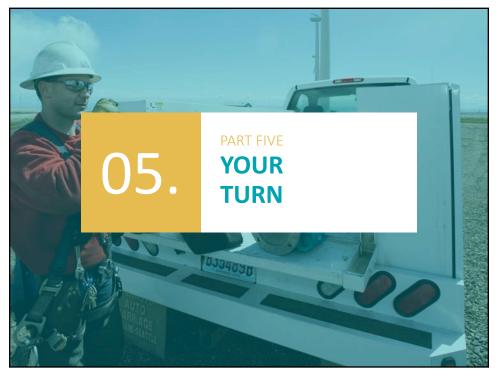
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LIMITATIONS & OPPORTUNITIES

- Need more evidence of LinkedIn as an accurate and reliable data source
- Need to refine method process for identifying program specific students and alumni

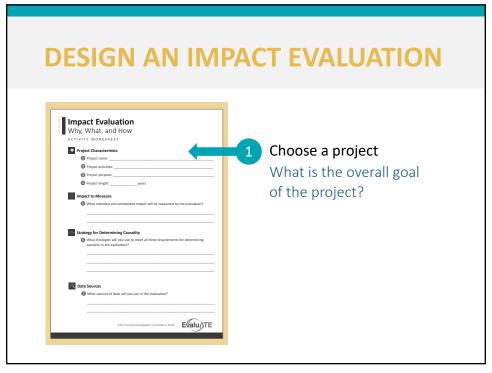
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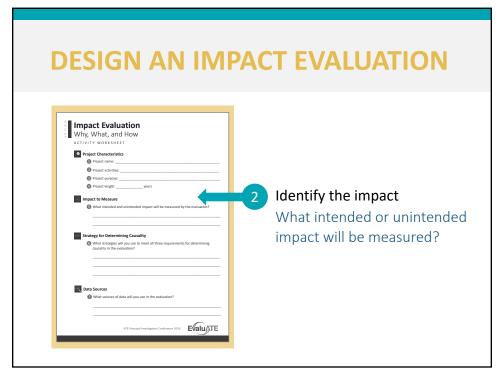
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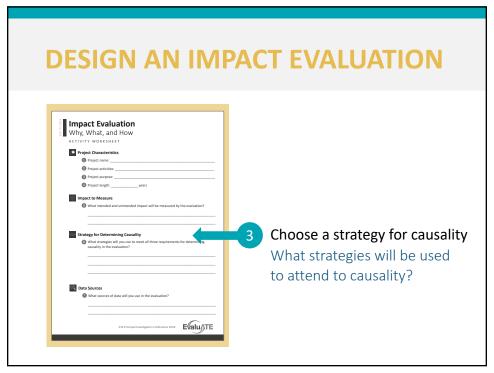
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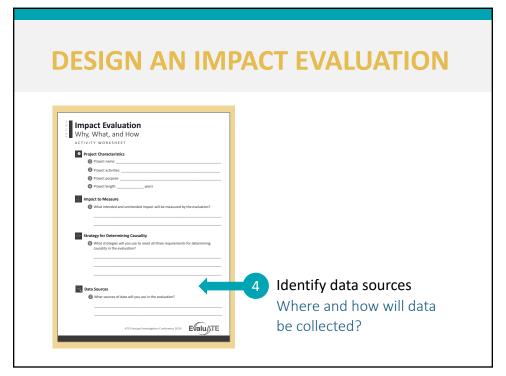
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REFLECTION	
REFLECTION	
Impact Evaluation Why, What, and How	What was easy?
Project Characteristics Project name: Project name: Project purpose: Project lingth: P	What was hard?
Impact to Measure What stended and unintended impact will be measured by the evaluation?	Is this realistic? Why or why not?
Strategy for Determining Causality What strategies will you use to need all three requirements for determining causality in the evaluation?	What resources would this take? (e.g., time, money, data)
Data Sources What sources of data will you use in the evaluation? ATI Principal Investigation Conference 2000	

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