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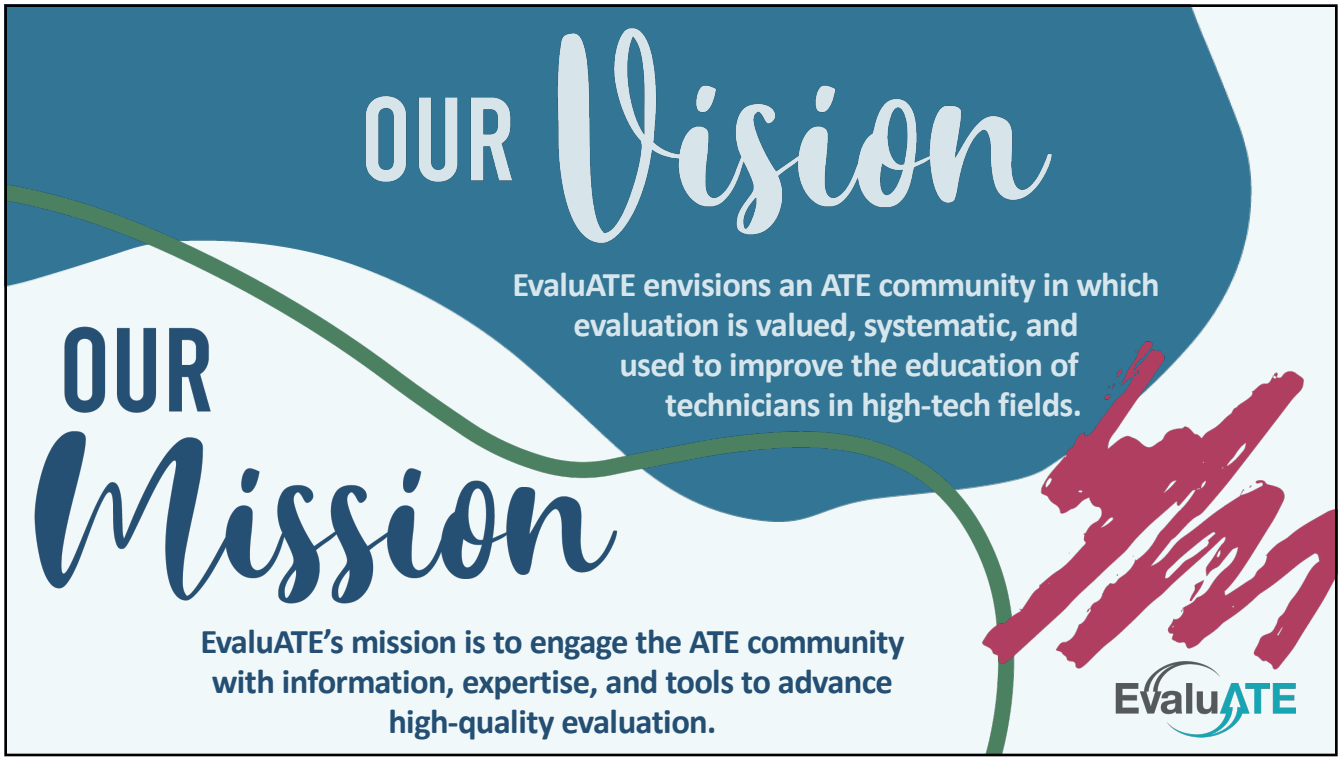
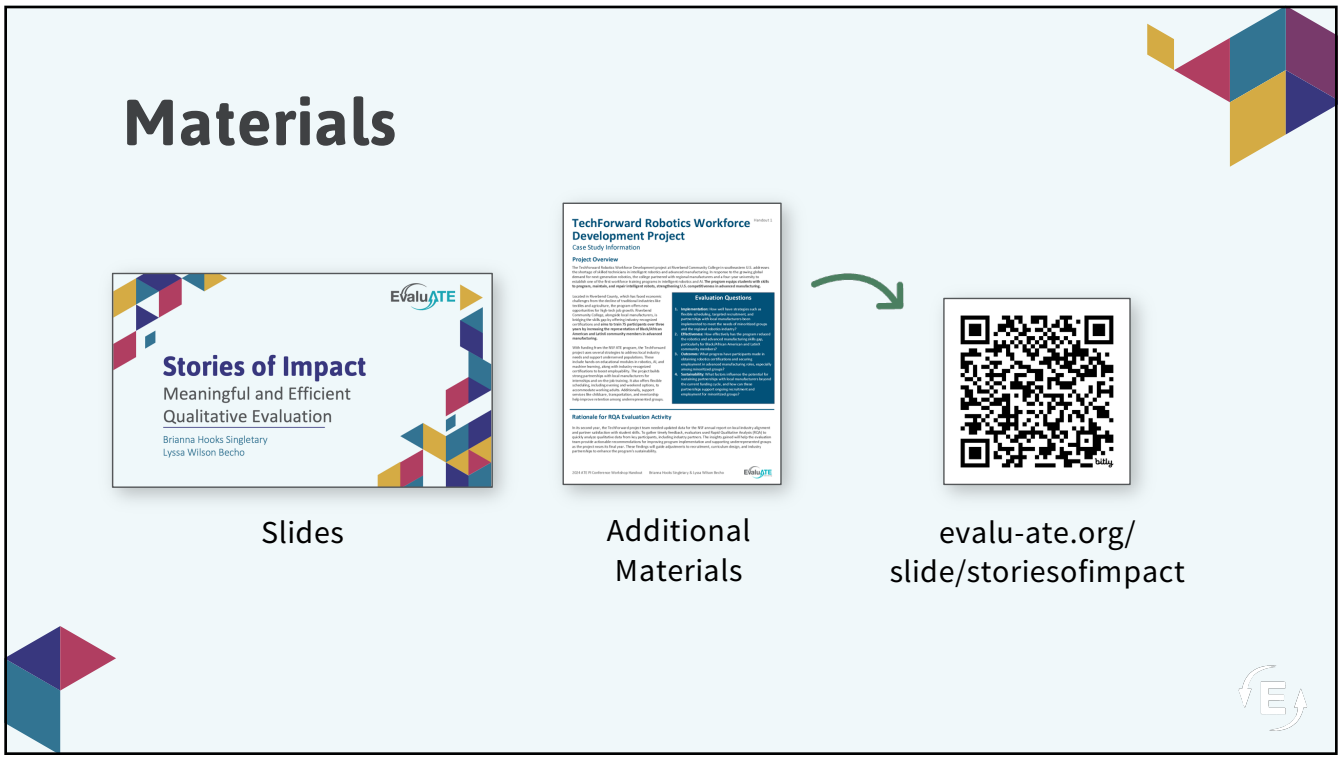
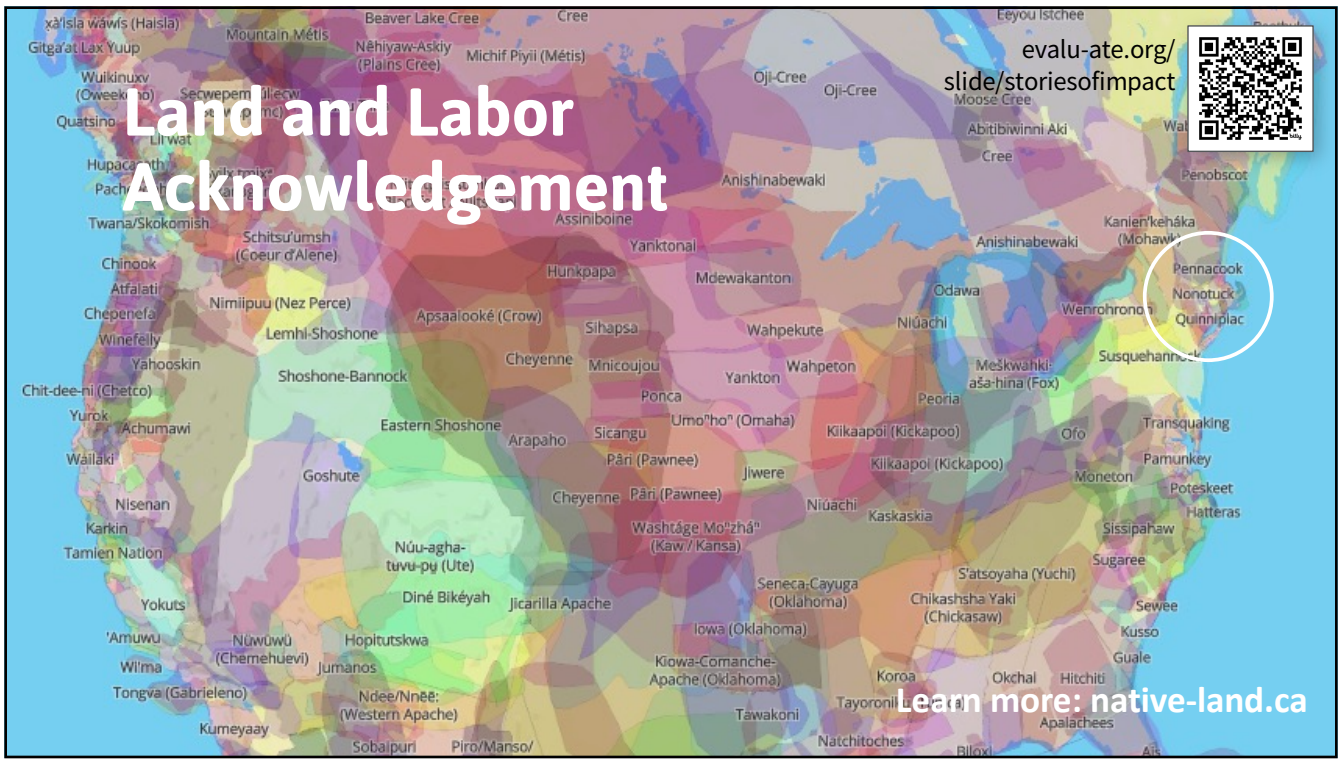

OUR Vision
EvaluATE envisions an ATE community in which evaluation is valued, systematic, and used to improve the education of technicians in high-tech fields.
OUR Mission
EvaluATE's mission is to engage the ATE community with information, expertise, and tools to advance high-quality evaluation.
EvaluATE

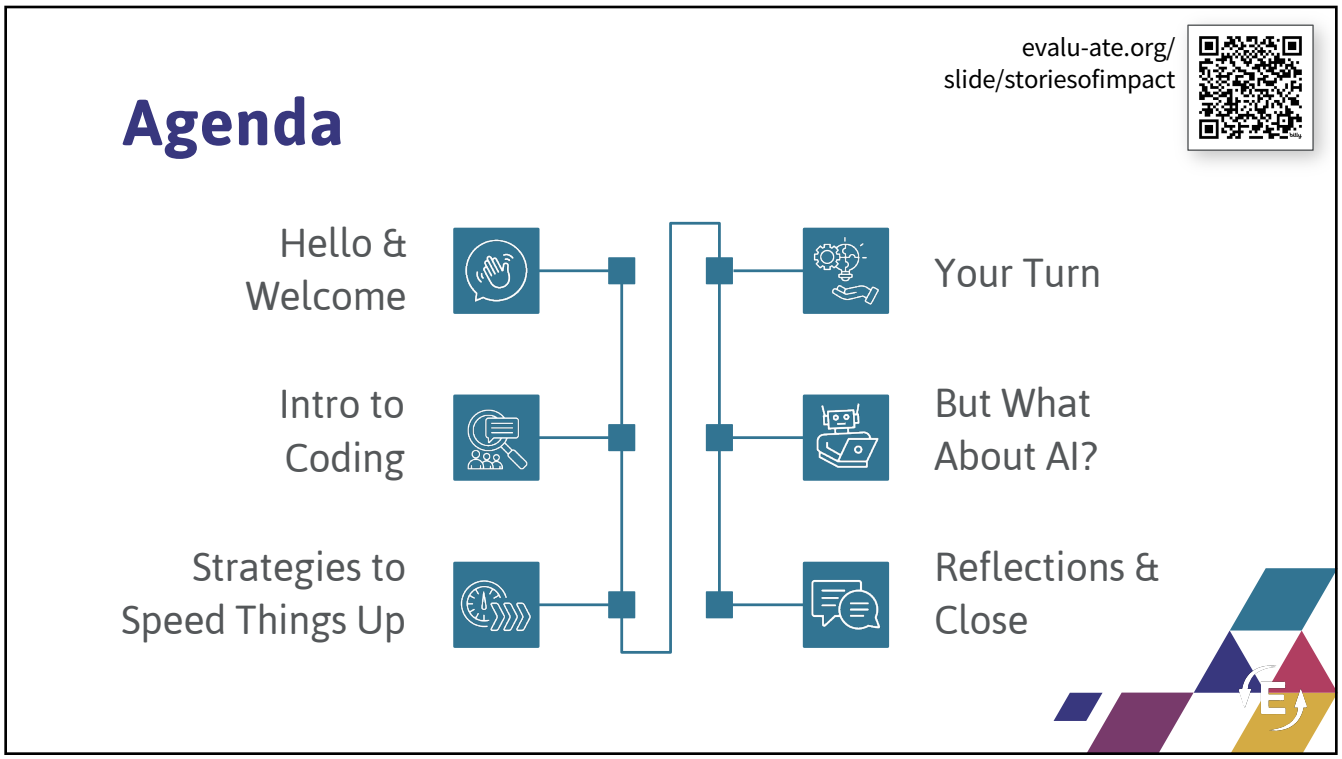
3


Materials
EvaluATE
Stories of Impact
Meaningful and Efficient
Qualitative Evaluation
Brianna Hooks Singletary
Lyssa Wilson Becho
Slides
TechForward Robotics Workforce Development Project
Case Study Information
Project Overview
Evaluation Questions
Rationale for RQA Evaluation Activity
Additional Materials
evalu-ate.org/slide/storiesofimpact

4


Land and Labor Acknowledgement
evalu-ate.org/slide/storiesofimpact
Learn more: native-land.ca

7


evalu-ate.org/slide/storiesofimpact
Agenda
Hello & Welcome
Intro to Coding
Strategies to Speed Things Up
Your Turn
But What About AI?
Reflections & Close

8

Intentions

- Understand the principles of rapid qualitative analysis
- Learn new strategies to make qualitative evaluation more accessible in low-resourced situations
- Explore and apply practical tools and techniques

9

Have you analyzed qualitative data for a project evaluation before?

10

Candy Sorting

An Ice Breaker Activity

10:00

11

12

Qualitative Data Methods

Interviews

Focus Groups

Observations

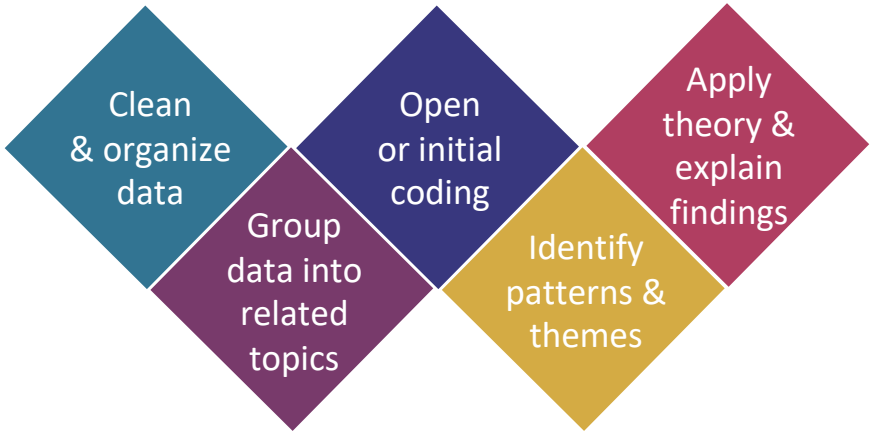
Surveys

13

Qualitative Data Analysis

14

Qualitative Data Analysis



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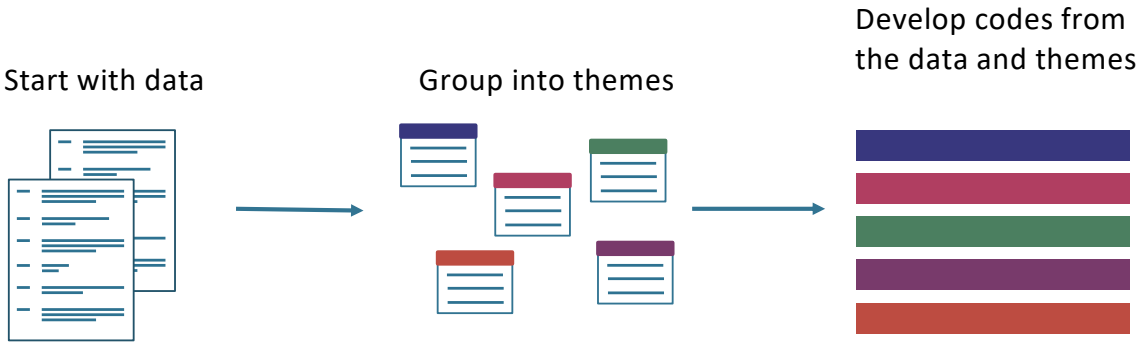
Inductive Coding



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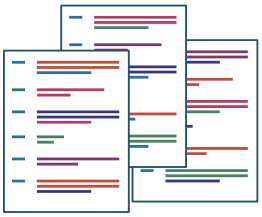
Deductive Coding

Start with codes

Find excerpts that fit the codes



17

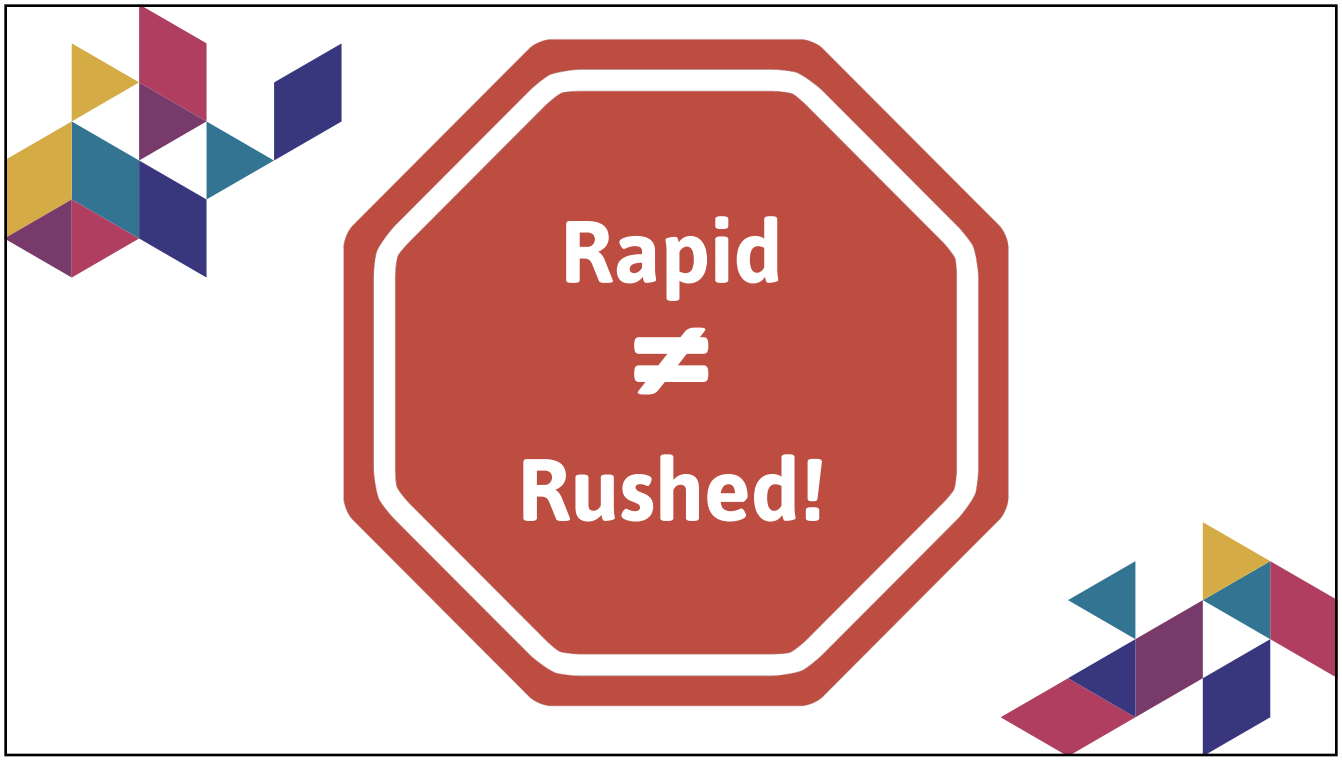
How have you used qualitative methods in your evaluation work?

Group Discussion

18

19

20



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Addressing Common Evaluator Challenges with RQA

- Time constraints
- Requirements for other evaluation or research components
- Need for deliverables or progress update
- Urgent issues (e.g., addressing equity concerns)

22

	Qualitative Analysis	Rapid Qualitative Analysis
Purpose	In-depth exploration to understand nuance, detailed phenomena	Provides quick, actionable insights for time-sensitive decisions
Ideal for	In-depth research, theory development	Project evaluation, fast projects, early stage research
Data Collection	Flexible, often explores a broad range of topics based on emerging patterns	Focuses on essential, pre-defined questions
Data Processing	Detailed involves iterative coding, categorization, and theming	Fast, uses structured templates and frameworks for quick analysis
Time Needed	Long (weeks to months or years)	Typically, short (days to weeks)
Deliverables	Detailed reports with rich descriptions	High-level summaries and recommendations

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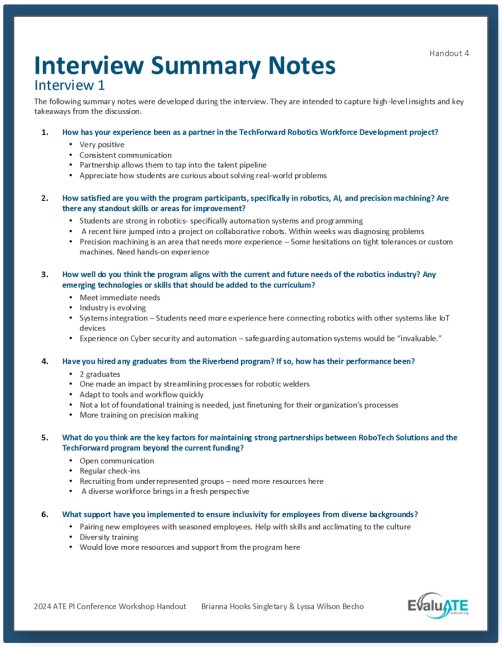
Rapid Analysis Coding Techniques

24

Interview Summary Notes

detailed notes taken throughout the interview



Handout 4

Interview Summary Notes

Interview 1

The following summary notes were developed during the interview. They are intended to capture high-level insights and key takeaways from the discussion.

1. **How has your experience been as a partner in the TechForward Robotics Workforce Development project?**
   - Very positive
   - Consistent communication
   - Partnership allows them to tap into the talent pipeline
   - Appreciate how students are curious about solving real-world problems
2. **How satisfied are you with the program participants, specifically in robotics, AI, and precision machining? Are there any standout skills or areas for improvement?**
   - Students are strong in robotics- specifically automation systems and programming
   - A recent hire jumped into a project on collaborative robots. Within weeks was diagnosing problems
   - Precision machining is an area that needs more experience – Some hesitations on tight tolerances or custom machines. Need hands-on experience
3. **How well do you think the program aligns with the current and future needs of the robotics industry? Any emerging technologies or skills that should be added to the curriculum?**
   - Meet immediate needs
   - Industry is evolving
   - Systems integration – Students need more experience here connecting robotics with other systems like IoT devices
   - Experience on Cyber security and automation – safeguarding automation systems would be "invaluable."
4. **Have you hired any graduates from the Riverbend program? If so, how has their performance been?**
   - 2 graduates
   - One made an impact by streamlining processes for robotic welders
   - Adapt to tools and workflow quickly
   - Not a lot of foundational training is needed, just finetuning for their organization's processes
   - More training on precision making
5. **What do you think are the key factors for maintaining strong partnerships between RoboTech Solutions and the TechForward program beyond the current funding?**
   - Open communication
   - Regular check-ins
   - Recruiting from underrepresented groups – need more resources here
   - A diverse workforce brings in a fresh perspective
6. **What support have you implemented to ensure inclusivity for employees from diverse backgrounds?**
   - Pairing new employees with seasoned employees. Help with skills and acclimating to the culture
   - Diversity training
   - Would love more resources and support from the program here

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Handout 4

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Interview Summary Notes

Inductive Analysis

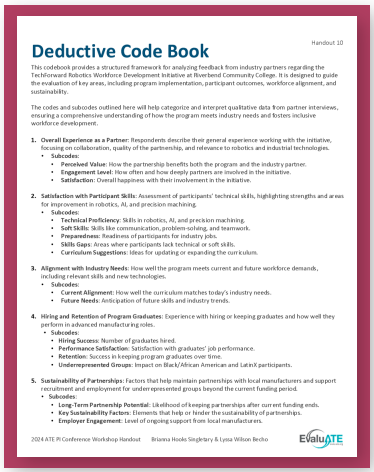
1. **How has your experience been as a partner in the TechForward Robotics Workforce Development project?**
   - Very positive — *Overall experience*
   - Consistent communication — *Communication*
   - Partnership allows them to tap into the talent pipeline — *Perceived value*
   - Appreciate how students are curious about solving real-world problems — *Student attitudes*

1. Read the interview notes
2. Highlight or underline key points or ideas
3. Label with codes
4. Refine and group codes
5. Summarize the main themes
6. Review and make adjustments

26

Interview Summary Notes

Deductive Analysis



Handout 10

Deductive Code Book

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   - Subcodes:
     - **Technical Proficiency:** Skills in robotics, AI, and precision machining.
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- Review predetermined codebook
- Read the interview notes
- Highlight relevant segments
- Assign codes
- Add comments (optional)

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Interview Audio

a recording of a conversation between people, capturing the questions and answers for later use.

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Interview Audio
Inductive Analysis

1. Create a coding matrix
2. Listen to audio segments
3. Note key concepts
4. Assign codes to each segment
5. Refine the codes
6. Summarize the main themes

Time Segment	Key Concepts/ Words	Code	Notes/ Observations
EXAMPLE: 0:00-0:00	*"difficulty hiring graduates"*	*Hiring challenges*	*Mentioned lack of hands-on experience.*
Clip 1	*"positive experience" "talent pipeline" "Consistent communication" Strong in robotics – automation system*	*Positive experience Access to talent pipeline Strong skills in robotics*	*A good experience with a student diagnosing issues*

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Interview Audio
Deductive Analysis

1. Review the Predetermined Codebook	**2.** Create a Coding Matrix for Organization	**3.** Create and Listen to Audio Segments
4. Apply Codes to Each Segment	**5.** Provide Supporting Quotes or Key Concepts	**6.** Review and Refine Codes

30

TechForward Robotics Workforce Development Project

Case Study

31

TechForward Robotics Workforce Development Project

Case Study

IMPLEMENTATION

How well have strategies such as flexible scheduling, targeted recruitment, and partnerships with local manufacturers been implemented to **meet the needs of minoritized groups and the regional robotics industry**?

32

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TechForward Robotics Workforce Development Project

Case Study

EFFECTIVENESS

How effectively has the program **reduced the robotics and advanced manufacturing skills gap**, particularly for Black/African American and LatinX community members?

33

TechForward Robotics Workforce Development Project

Case Study

OUTCOMES

What progress have participants made in **obtaining robotics certifications and securing employment** in advanced manufacturing roles, especially among minoritized groups?

34

TechForward Robotics Workforce Development Project

Case Study

SUSTAINABILITY

What factors influence the potential for **sustaining partnerships with local manufacturers** beyond the current funding cycle, and how can these partnerships support ongoing recruitment and employment for minoritized groups?

35

Practice Time

As a group, we will practice inductive and deductive coding using audio files and interview summary notes.

36

Inductive coding

A bottom-up approach where codes emerge directly from the data without a preconceived framework.

37

Interview Summary Notes

Inductive Analysis

1. **How has your experience been as a partner in the TechForward Robotics Workforce Development project?**
   - Very positive
   - Consistent communication
   - Partnership allows them to tap into the talent pipeline
   - Appreciate how students are curious about solving real-world problems

1. Read the Interview Notes Carefully

38

Interview Summary Notes
Inductive Analysis

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2. Highlight or underline key points or ideas.

39

Interview Summary Notes
Inductive Analysis

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3. Label with Codes

40

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1. Read the Interview Notes Carefully
2. Highlight or underline key points or ideas.
3. Label with Codes

41

Interview Audio

Inductive Analysis

1. Create a Coding Matrix for Organization

Time Segment	Key Concepts/Words	Code	Notes/Observations
EXAMPLE: 0:00-0:00	*"difficulty hiring graduates"*	*Hiring challenges*	*Mentioned lack of hands-on experience.*
Clip 1			

42

Interview Audio
Inductive Analysis

2. Create and Listen to Audio Segments

43

Interview Audio
Inductive Analysis

3. Note Key Concepts

Time Segment	Key Concepts/Words	Code	Notes/Observations
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44

Interview Audio
Inductive Analysis

4. Assign Codes to Each Segment

Time Segment	Key Concepts/Words	Code	Notes/Observations
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45

Deductive coding

A top-down approach where you apply a predefined set of codes based on existing theories, frameworks, or hypotheses.

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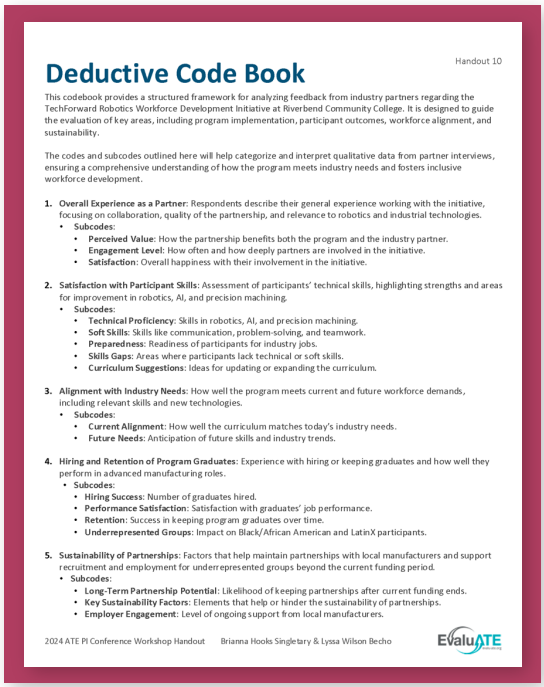
Deductive Code Book



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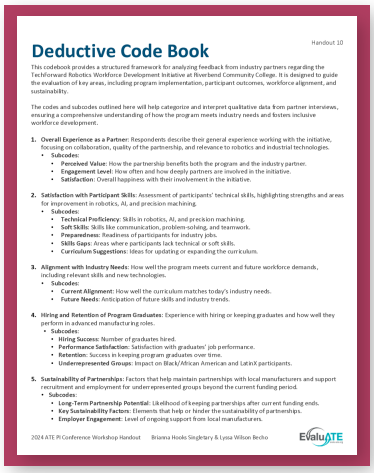
Interview Summary Notes

Deductive Analysis



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Review predetermined codebook

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Interview Summary Notes

Deductive Analysis

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   - Appreciate how students are curious about solving real-world problems

Review predetermined codebook

Read the interview notes

49

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Deductive Analysis

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Review predetermined codebook

Read the interview notes

Highlight relevant segments

50

Interview Summary Notes

Deductive Analysis

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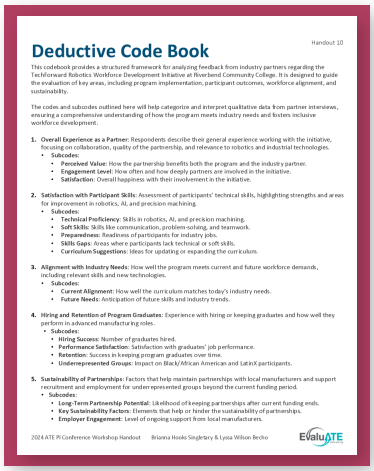
   - Very positive — *Satisfaction*
   - Consistent communication — *Engagement level*
   - Partnership allows them to tap into the talent pipeline — *Perceived value*
   - Appreciate how students are curious about solving real-world problems — *Preparedness*

- Review predetermined codebook
- Read the interview notes
- Highlight relevant segments
- Assign codes

51

Interview Summary Notes

Deductive Analysis



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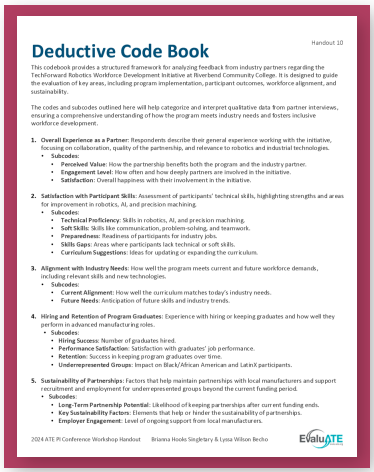
Deductive Analysis



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   - Subcodes:
     - **Current Alignment:** How well the curriculum matches today's industry needs.
     - **Future Needs:** Anticipation of future skills and industry trends.
4. **Hiring and Retention of Program Graduates:** Experience with hiring or keeping graduates and how well they perform in advanced manufacturing roles.
   - Subcodes:
     - **Hiring Success:** Number of graduates hired.
     - **Performance Satisfaction:** Satisfaction with graduates' job performance.
     - **Retention:** Success in keeping program graduates over time.
     - **Underrepresented Groups:** Impact on Black/African American and Latinx participants.
5. **Sustainability of Partnerships:** Factors that help maintain partnerships with local manufacturers and support recruitment and employment for underrepresented groups beyond the current funding period.
   - Subcodes:
     - **Long-Term Partnership Potential:** Likelihood of keeping partnerships after current funding ends.
     - **Key Sustainability Factors:** Elements that help or hinder the sustainability of partnerships.
     - **Employer Engagement:** Level of ongoing support from local manufacturers.

2024 ATE PI Conference Workshop Handout Brianna Hooks Singletary & Lyssa Wilson Becho EvaluATE

1. Review the Predetermined Codebook

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Interview Audio
Deductive Analysis

2. Create a Coding Matrix for Organization

Time Segment	Relevant Code	Supporting Quote/Key Concepts	Notes/Observations
EXAMPLE: 0:00-0:00	*Hiring challenges*	*"difficulty hiring graduates"*	*Mentioned lack of hands-on experience.*
Clip 1			

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Interview Audio
Deductive Analysis

3. Create and Listen to Audio Segments

55

Interview Audio
Deductive Analysis

4. Apply Codes to Each Segment

Time Segment	Relevant Code	Supporting Quote/Key Concepts	Notes/Observations
EXAMPLE: 0:00-0:00	*Hiring challenges*	*"difficulty hiring graduates"*	*Mentioned lack of hands-on experience.*
Clip 1	• *Satisfaction* • *Technical proficiency* • *Perceived value* • *Preparedness*		

56

Interview Audio
Deductive Analysis

5. Provide Supporting Quotes or Key Concepts

Time Segment	Relevant Code	Supporting Quote/Key Concepts	Notes/Observations
EXAMPLE: 0:00-0:00	*Hiring challenges*	*"difficulty hiring graduates"*	*Mentioned lack of hands-on experience.*
Clip 1	• *Satisfaction* • *Technical proficiency* • *Perceived value* • *Preparedness*	• *"positive experience"* • *"consistent communication"* • *"solid talent pipeline"* • *"strong in robotics"*	• *Students are strong in automation systems and programming* • *Student was able to diagnose issues*

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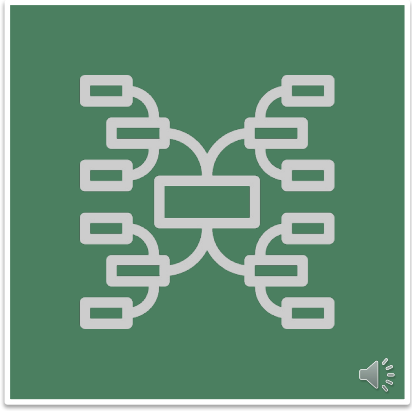
Interview Audio
Deductive Analysis

6. Review and Refine Codes



58

Thoughts on Inductive and Deductive Coding

1. What was your biggest challenge during the inductive and deductive coding?
2. Which coding approach felt more intuitive?
3. How would you improve your coding process?

59

Break Time

10 minutes

60

61

62

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Consolidated Framework for Implementation Research
RQA Framework

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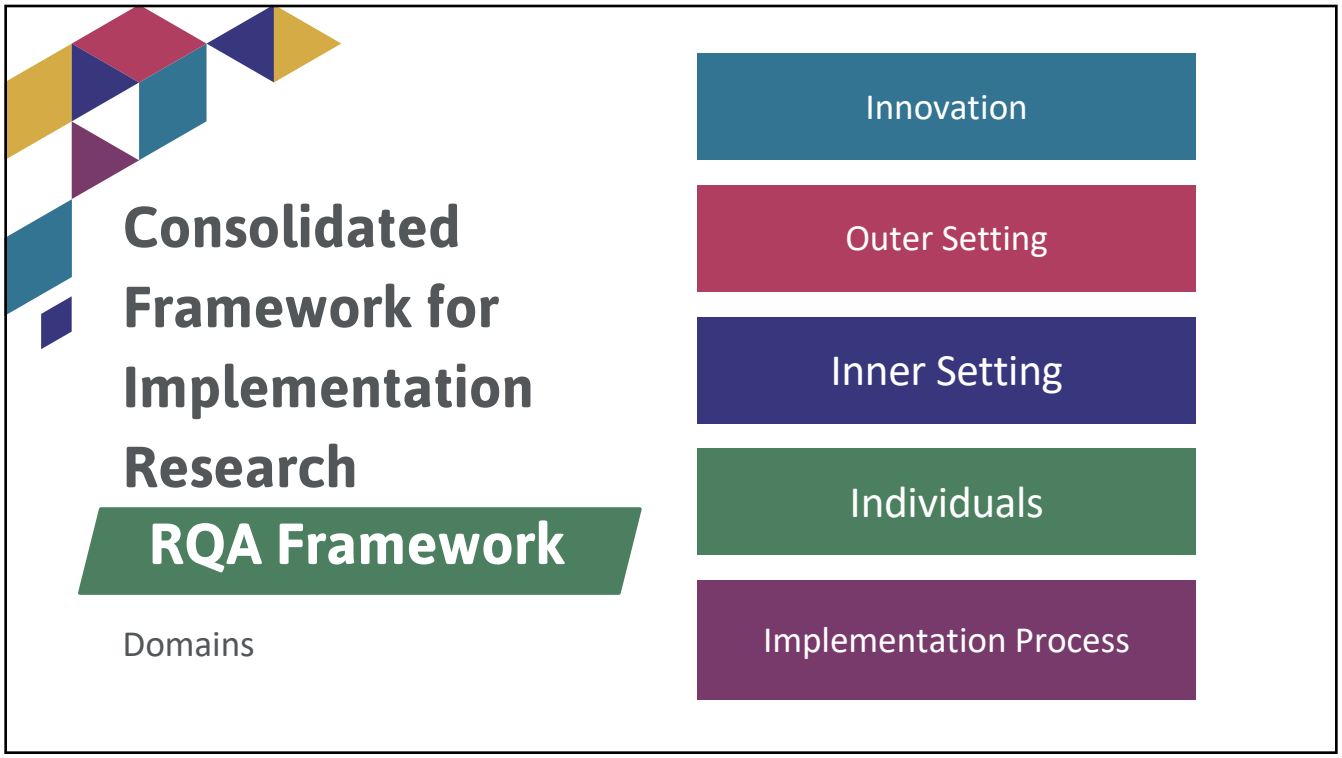
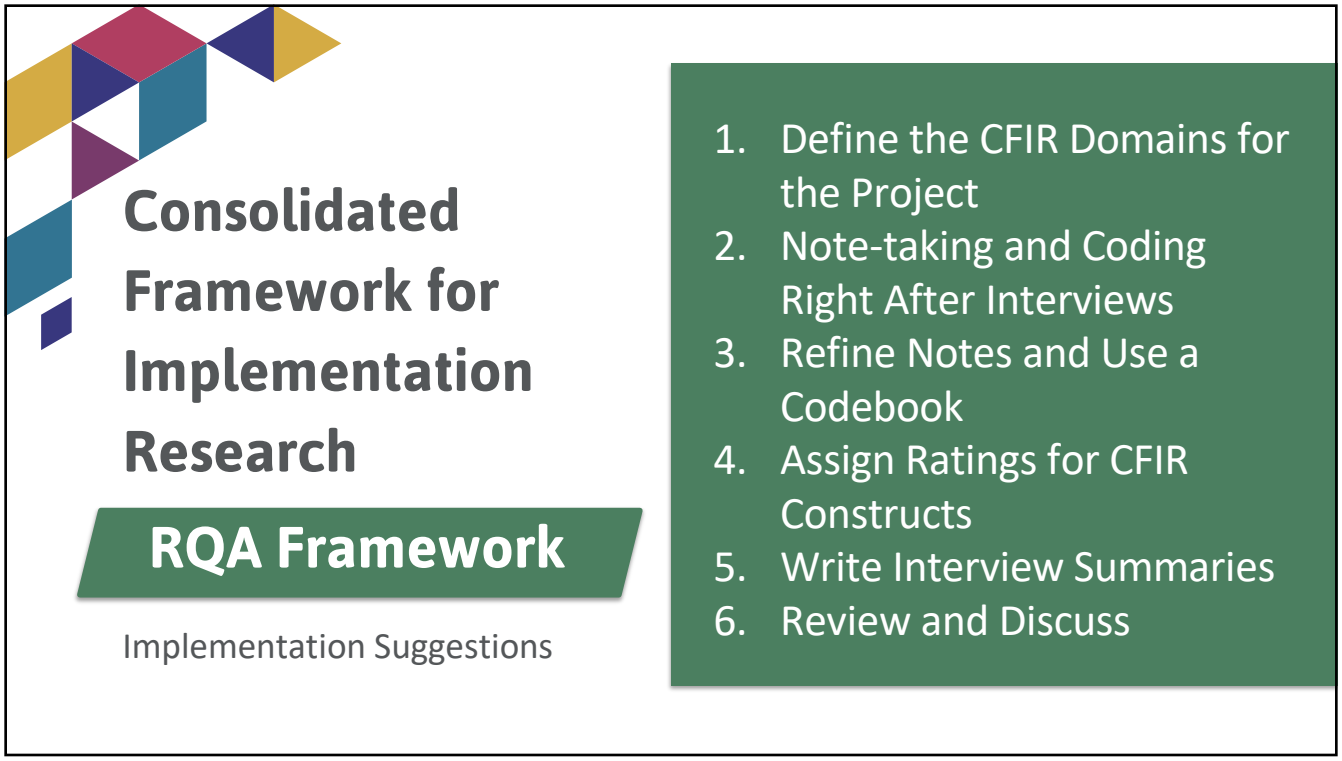
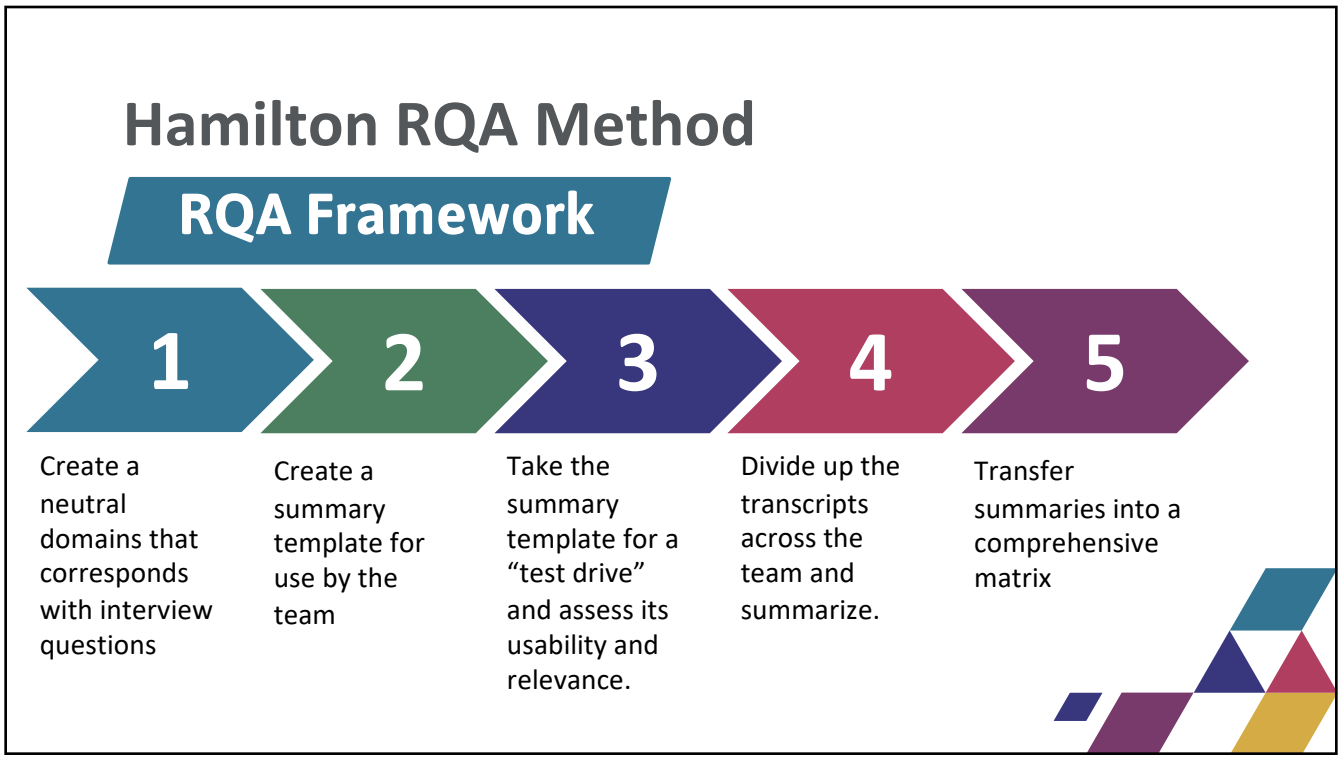

Consolidated Framework for Implementation Research
RQA Framework
Domains
Innovation
Outer Setting
Inner Setting
Individuals
Implementation Process

64


Consolidated Framework for Implementation Research
RQA Framework
Implementation Suggestions
1. Define the CFIR Domains for the Project
2. Note-taking and Coding Right After Interviews
3. Refine Notes and Use a Codebook
4. Assign Ratings for CFIR Constructs
5. Write Interview Summaries
6. Review and Discuss

65


Hamilton RQA Method
RQA Framework
1
2
3
4
5
Create a neutral domains that corresponds with interview questions
Create a summary template for use by the team
Take the summary template for a "test drive" and assess its usability and relevance.
Divide up the transcripts across the team and summarize.
Transfer summaries into a comprehensive matrix

66

Rigorous and accelerated data reduction (RADaR) technique

RQA Framework

Step 1 Ensure that all the data transcripts are formatted similarly

Step 2 Place formatted data transcripts into an all-inclusive Phase 1 table

Step 3 Reduce data in the Phase 1 table to produce a Phase 2 data table

Step 4 Further reduce the Phase 2 table into additional tables

Step 5 Draft the project deliverables using the final data table.

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Rigorous and accelerated data reduction (RADaR) technique

RQA Framework

Transcript #	Question	Response	Code	Notes

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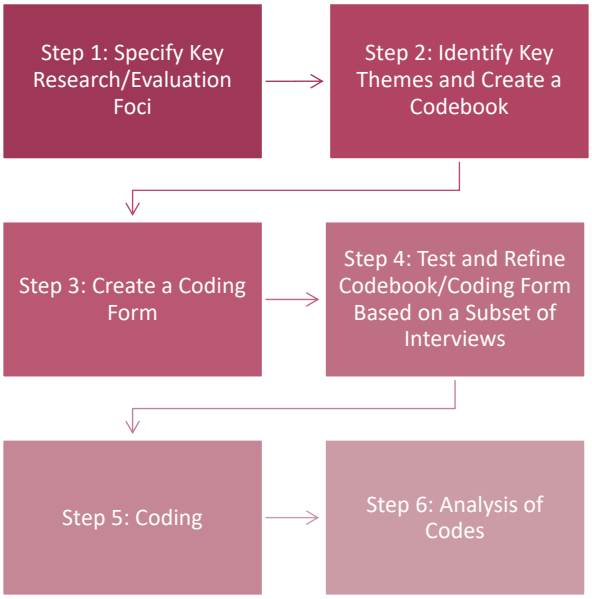
Rapid Identification of Themes from Audio (RITA)

RQA Framework



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Rapid Identification of Themes from Audio (RITA)

RQA Framework

	Clip 1	Clip 2	Clip 3	Clip 4	Clip 5	Clip 6	Clip 7
Theme 1:							
Sub Code:							
Sub Code:							
Sub Code:							
Sub Code:							
Theme 2:							
Sub Code:							
Sub Code:							
Sub Code:							
Sub Code:							
Theme 3:							
Sub Code:							
Sub Code:							
Sub Code:							
Sub Code:							
Theme 4							
Sub Code:							
Sub Code:							
Sub Code:							
Sub Code:							

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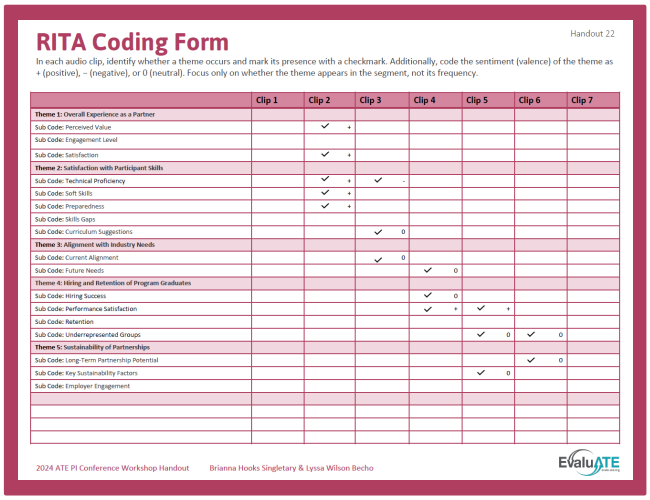
Rapid Identification of Themes from Audio (RITA)

RQA Framework



RITA Coding Form

Handout 22

In each audio clip, identify whether a theme occurs and mark its presence with a checkmark. Additionally, code the sentiment (valence) of the theme as + (positive), – (negative), or 0 (neutral). Focus only on whether the theme appears in the segment, not its frequency.

	Clip 1	Clip 2	Clip 3	Clip 4	Clip 5	Clip 6	Clip 7
Theme 1: Overall Experience as a Partner							
Sub Code: Perceived Value		✓ +					
Sub Code: Engagement Level							
Sub Code: Satisfaction		✓ +					
Theme 2: Satisfaction with Participant Skills							
Sub Code: Technical Proficiency		✓ +	✓ -				
Sub Code: Soft Skills		✓ +					
Sub Code: Preparedness		✓ +					
Sub Code: Skills Gaps							
Sub Code: Curriculum Suggestions			✓ 0				
Theme 3: Alignment with Industry Needs							
Sub Code: Current Alignment			✓ 0				
Sub Code: Future Needs				✓ 0			
Theme 4: Hiring and Retention of Program Graduates							
Sub Code: Hiring Success				✓ 0			
Sub Code: Performance Satisfaction				✓ +	✓ +		
Sub Code: Retention							
Sub Code: Underrepresented Groups					✓ 0	✓ 0	
Theme 5: Sustainability of Partnerships							
Sub Code: Long-Term Partnership Potential						✓ 0	
Sub Code: Key Sustainability Factors					✓ 0		
Sub Code: Employer Engagement							

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Artificial Intelligence in Qualitative Analysis

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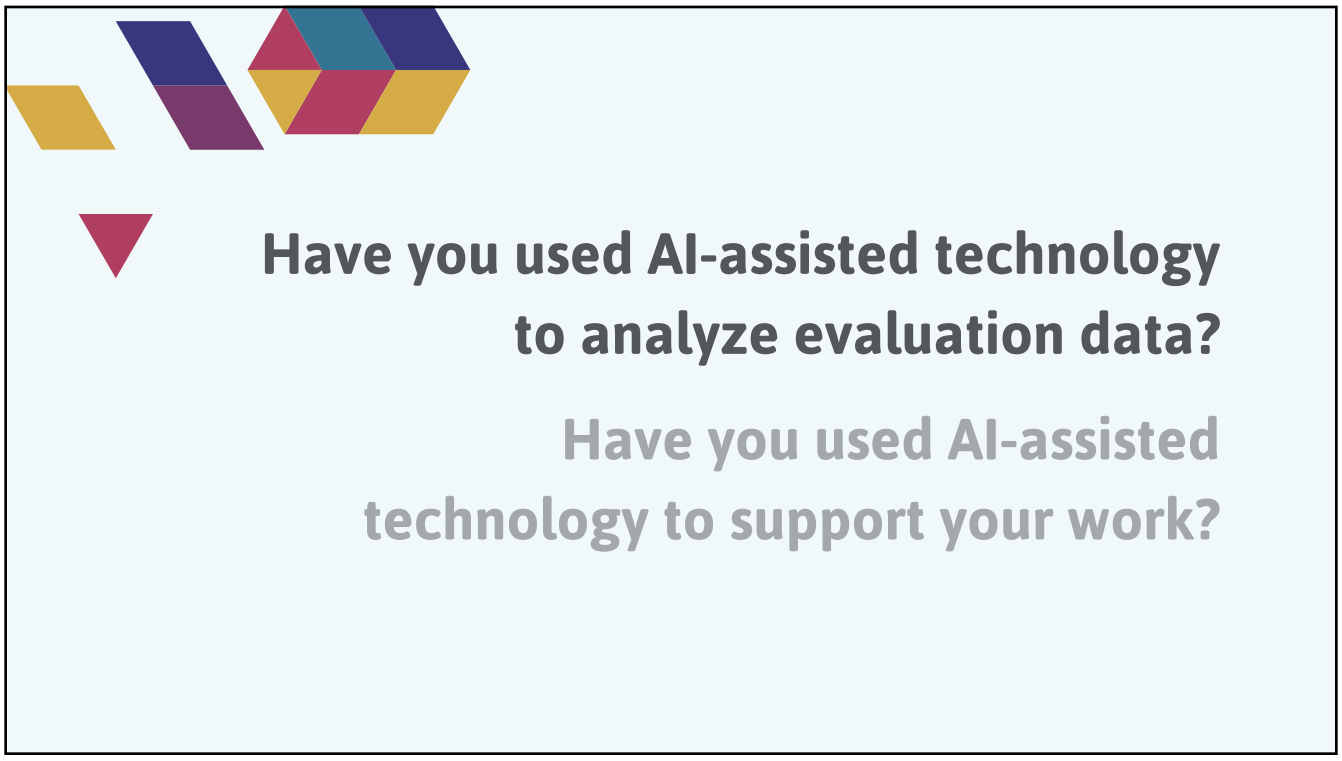
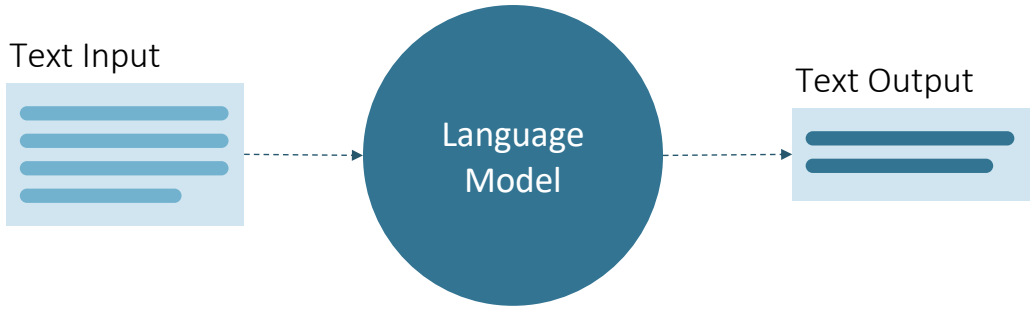
Have you used AI-assisted technology to support your work?

73


Have you used AI-assisted technology to analyze evaluation data?
Have you used AI-assisted technology to support your work?

74

Large Language Models



75

Considerations When Using AI

Use AI as your assistant.
It cannot replace you.

AI lacks context.
It only has the data you give it.

AI needs supervision.
It hallucinates.

76

Considerations When Using AI

AI isn't' good at "why" questions.
Its good at spotting patterns, not understanding motivations.

AI is biased.
It exacerbates human error that is already there.

77

Considerations When Using AI

AI isn't' good at "why" questions.
Its good at spotting patterns, not understanding motivations.

AI is biased.
It exacerbates human error that is already there.

Not all AI data security is made equal.

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Using AI to Support RQA

- AI-Assisted Note Taking
- AI-Assisted Transcription
- AI-Assisted Data Organization
- AI-Assisted Coding
- AI-Assisted Exploration of Transcripts

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Using AI to Support RQA

AI-Assisted Note Taking

Otter.ai

marvin

AVOMA

FATHOM

80

Using AI to Support RQA

AI-Assisted Transcription

rev

MeetGeek

sonix

Otter.ai

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Using AI to Support RQA

AI-Assisted Data Organization

MAXQDA

NVIVO

82

Using AI to Support RQA

AI-Assisted Coding

MAXQDA

NVIVO

insight 7

Delve

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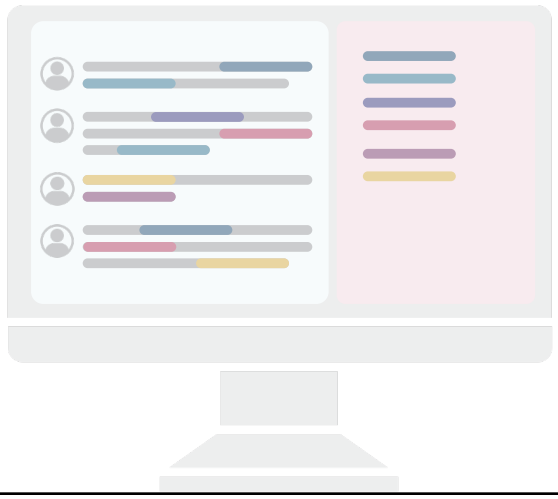
Using AI to Support RQA

AI-Assisted Coding



"Develop a detailed thematic analysis report based on the qualitative data collected from interviews with participants. Highlight key patterns, insights, and emerging trends to inform decision –making processes."

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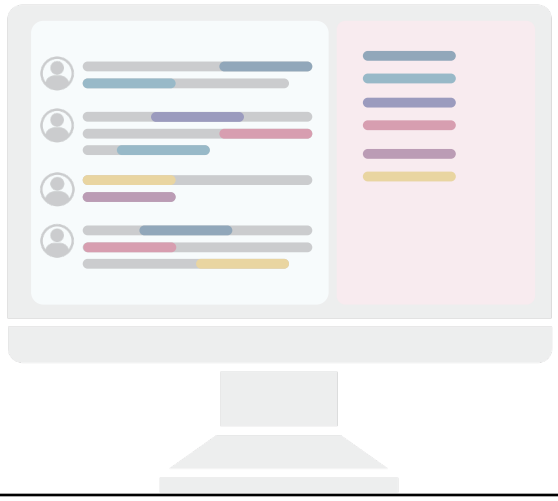
Using AI to Support RQA

AI-Assisted Coding

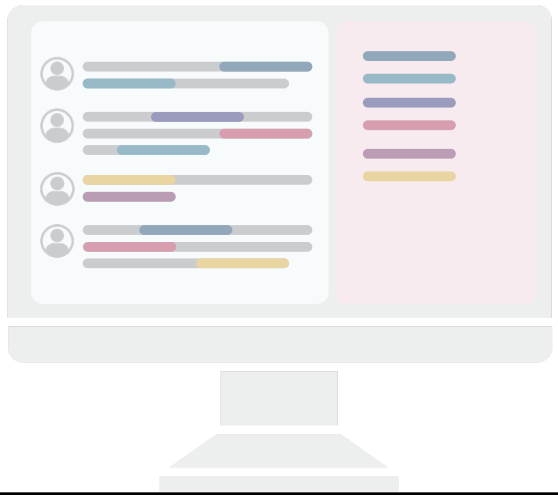


"Summarize the key insights from in-depth interviews conducted as part of an evaluation. Distill complex narratives into concise summaries that capture the essence of participants' experiences and perspectives."

85

Using AI to Support RQA

AI-Assisted Coding



"Base your responses strictly on the provided information and don't add any external information."

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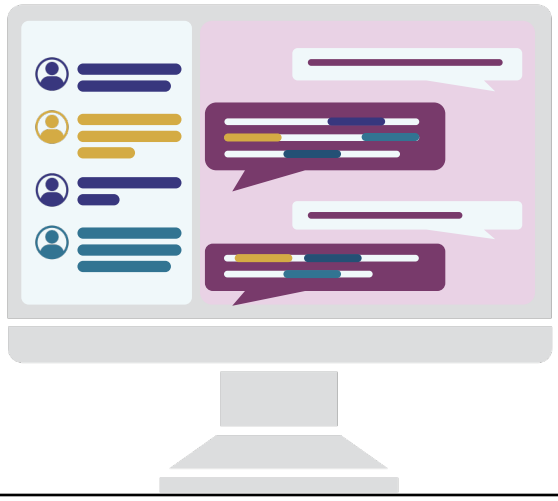
Using AI to Support RQA

AI-Assisted Exploration of Transcripts



Copilot

Claude

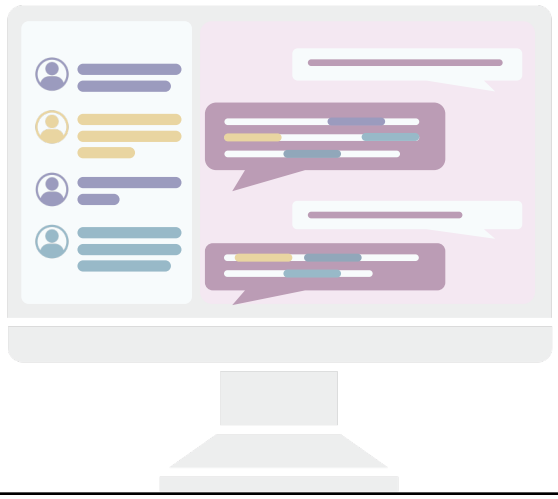
perplexity

ChatGPT

87

Using AI to Support RQA

AI-Assisted Exploration of Transcripts

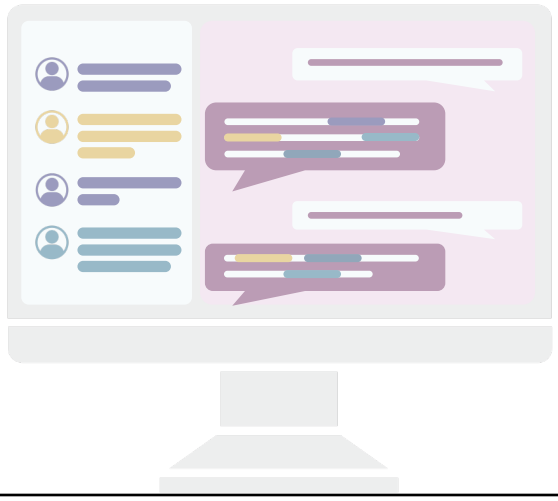


"What are the most common suggestions participants made for improving the program?"

88

Using AI to Support RQA

AI-Assisted Exploration of Transcripts



"How do participant perspectives vary by role (e.g., faculty, students)?"

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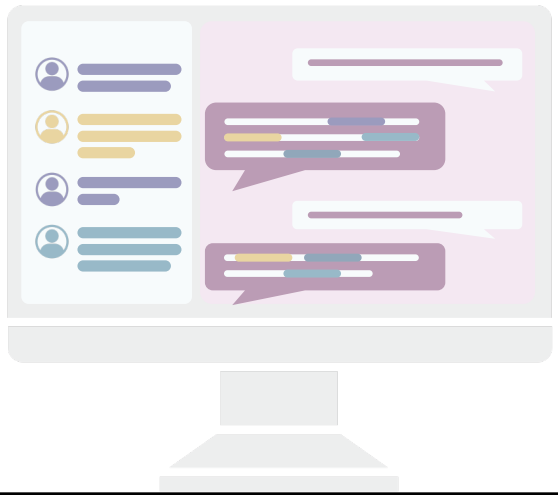
Using AI to Support RQA

AI-Assisted Exploration of Transcripts



"Summarize what participants said about the workplace-based learning component of our project."

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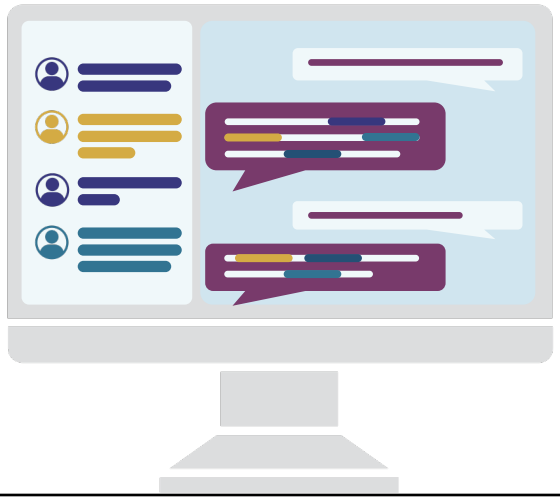
Let's Try!

Copilot

- Offered through my institution
- Inputs remain on local server
- Doesn't use inputs for training



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Reflections & Closing

92

Individual Reflection

- What was the most surprising thing you learned today?
- Can you identify areas where rapid qualitative analysis might not be suitable for your work? Why?
- What changes might you make to your current evaluation(s) based on this workshop?

93

Group Reflection

- What was the most surprising thing you learned today?
- Can you identify areas where rapid qualitative analysis might not be suitable for your work? Why?
- What changes might you make to your current evaluation(s) based on this workshop?

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Please,
take a minute to
complete our

Feedback Survey

95

Thank you!

Brianna.hookssingletary@wmich.edu
Lyssa.becho@wmich.edu

See what else EvaluATE's up to at the conference this year!

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