Evaluating Professional Learning:
A Workshop Series Companion to the Tool

Phase 4: Making Meaning of Your Data
Workshop 4A

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IES Institute of Education Sciences

Workshop sequence

Phase 1: Preparing for evaluation

Phase 2: Developing Strong Evaluation Questions

Phase 3: Developing a Data Collection Plan

Phase 4: Making Meaning of Your Data

Today's Goals

Participants will:

- Learn a process and some useful methods for analyzing data
- Develop a plan for analyzing your data

Agenda

Progress check-in: Baseline data

Overview of data analysis process

Example: Data analysis to evaluate professional learning

Activity: Plan how you will analyze your evaluation questions

Progress check-in

Check-in on next steps from last session

- Data Collection Plan
  - Do you have all of your data collection tools ready to go?
  - Do the people who have data collection responsibilities know what they need to do and when to do it?
  - Are there any data permission issues that still need to be addressed? What data sources did you identify?

- Baseline Data
  - What limitations or challenges were there in collecting your data?
  - What questions do you have?

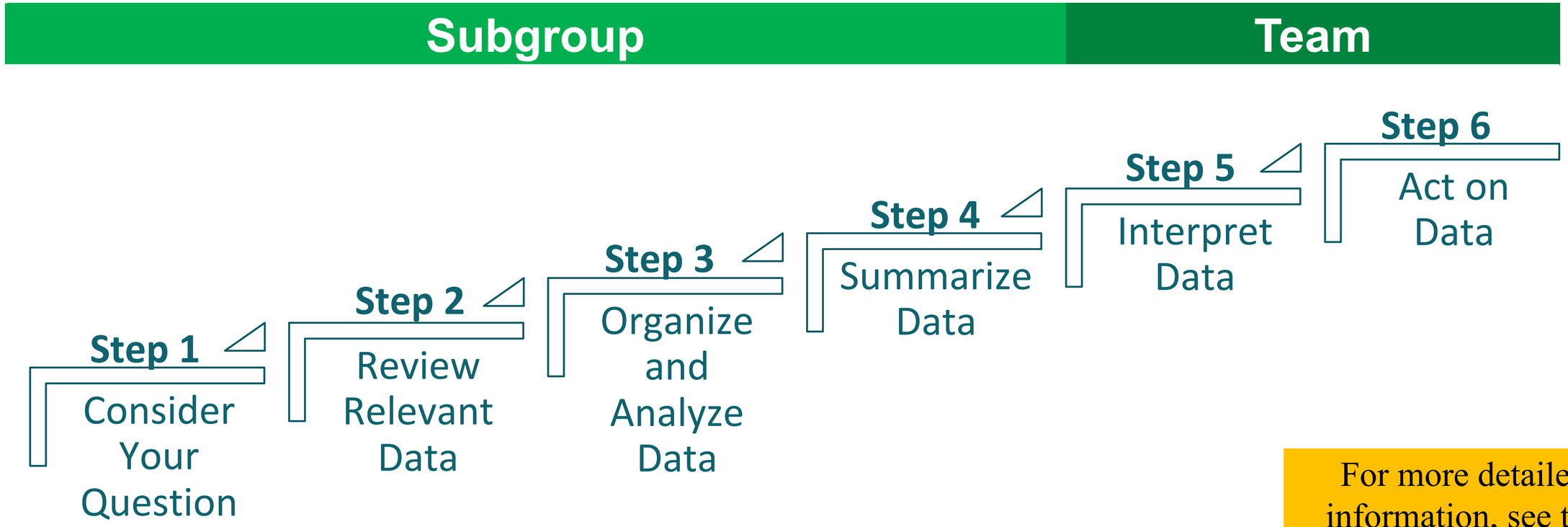
The Data Analysis Process

Defining Data Analysis

Data analysis is more than reporting the data you have. It involves:

- Representing the data to support interpretation
- Examining the data to make sense of the data
- Using the data to answer the evaluation questions
- Using the data to inform decision making

Overview of the Analysis Process



For more detailed information, see the "**Roadmap for Making Sense of Your Data**" on page 25 of the Toolkit.

Data Analysis: Methods

Common Data Analysis Methods

Quantitative

Descriptive Analyses

- Descriptive statistics: mean, mode, median, range etc…
- Charts, graphs, and tables

Inferential Statistics

- Identifies relationships or causal connections

Qualitative

- Thematic coding
  - Inductive v. deductive
  - Based on framework
- Code counts (count numbers of similar responses)
- Thematic summaries with quotations

Benefits and Limitations

	Quantitative	Qualitative
Benefits	• Descriptive picture • Used to draw causal inferences depending on study design • Can indicate differences and relationships between groups	• Can tell you the “how and why” • May help make sense of patterns in quantitative data • Allows for detailed descriptions and examples
Challenges	• Does not detail a specific cases • May not generalize if you do not have the right study design or sample size • May not give insight into WHY we see a pattern	• Data analysis is time consuming and may require more resources • Could be considered more subjective because using an interpretive lens to select participants’ words

Quantitative Analysis: Descriptive Statistics

Use descriptive analyses when you want to know about the entire group or different groups

- Average
- Median
- Mode
- Range
- Difference

Example Evaluation Questions

- How long did teachers spend one-on-one with students?
- What skill did most teachers improve upon?
- How engaged were teachers at the PD session?

Qualitative Analysis: Coding

Inductive

- Comes from the data you collected or observed.
- Read through the interview or focus group notes and notice common themes. You would use these to make the codes.

Deductive

- Comes from existing theory or literature, or pre-existing expectations or ideas.
- Read studies or research on a topic and use similar codes identified.

Qualitative Analysis: Coding

Use **code counts** to summarize group perceptions or patterns.

- Frequency tables
- Comparative analysis
- Disaggregated analysis

Example Evaluation Questions

- How many thought the PD was a good use of time?

Use **thematic summaries** for more detailed study of perceptions and engagement.

- Grouping feedback
- Thick descriptions
- Sensemaking

Example Evaluation Questions

- How do teachers perceive the training?

Example Scenario

Example Scenario

District A implemented a series of professional learning workshops and coaching activities with the goal of increasing the quality of 1-1 instructional time in classrooms. Evaluation questions include:

- Were the professional learning workshops high quality?
- Which teachers participated in the workshops and coaching?
- Did teachers value the professional learning?
- **Are teachers increasing their 1-1 instructional time with students?**
- **How are teachers using their 1-1 instructional time with students?**
- **What are challenges of increasing 1-1 instructional time identified by teachers?**

Step 1: Consider the Questions

Evaluation Question	What data do you have to address this evaluation question?	Is the data quantitative or qualitative?
Are teachers increasing their 1-1 instructional time with students?	Teacher survey administered before and after PD activities	Quantitative
How are teachers using their 1-1 instructional time with students?	Interviews (questions 5 and 6) and focus groups (question 3)	Qualitative
What are challenges of increasing 1-1 instructional time identified by teachers?	Interviews (questions 7 and 8) and focus groups (question 4)	Qualitative

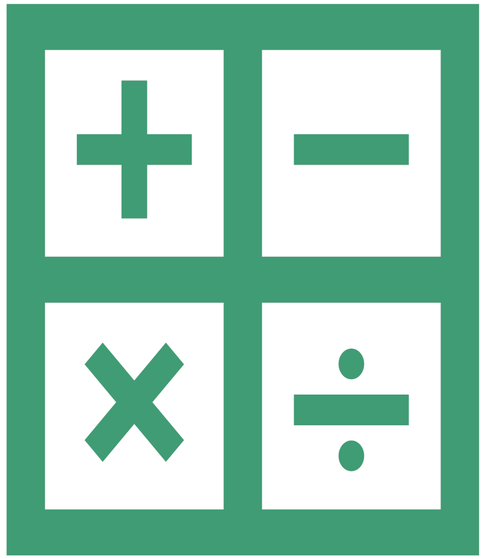
Step 2: Review Relevant Data for Quality and Completeness

Evaluation Question	Is the sample size adequate and representative?	Is the data complete?
Are teachers increasing their 1-1 instructional time with students?	20 of 25 completed surveys New and experienced teachers were surveyed	90% of surveys were fully completed
	Included new, experienced, and veteran teachers from different grade levels	Quality notes were collected from each focus group using standardized note taking form
What are challenges of increasing 1-1 instructional time identified by teachers?	Same as above	Same as above

Step 3: Organize and Examine Data

Evaluation Question: Are teachers increasing one-on-one instructional time with students?

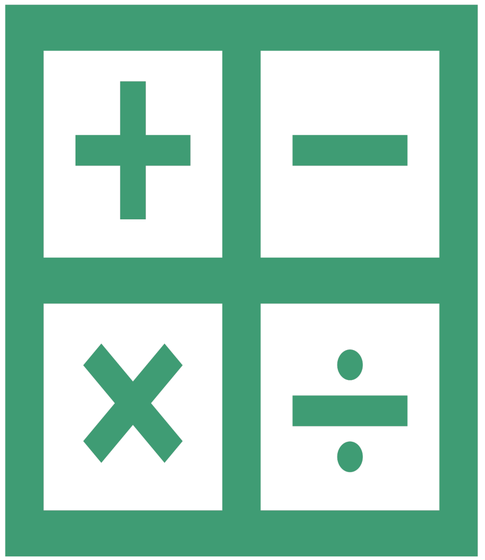
Quantitative Data	
Calculate descriptive statistics	range
Are there groups of teachers that need to be examined?	New and experienced teachers
Do you need to make calculations for more than one point in time?	Before and after PD activities



Step 3: Organize and Examine Data

Evaluation Question: Are teachers increasing one-on-one instructional time with students?

Quantitative Calculate Descriptive Statistics			
	Pre - Intervention	**Post - Intervention**	**Summary**
Average (standard deviation)	13.8 minutes (13.6)	17.5 minutes (12.1)	The average increased by 3.7 minutes.
Median	10 minutes	13.5 minutes	The median value also increased by 3.5 minutes.
Mode	10 minutes	10 minutes	The mode value is the same post intervention.
Range	0 – 60 minutes	5 – 50 minutes	The minimum increased post intervention.



Step 3: Organize and Examine Data

Evaluation Questions: What are challenges of increasing 1-1 instructional time identified by teachers?

Qualitative Data	
What's the best way to organize your data to help you see patterns? By interview or focus group questions? By respondent type (teacher, administrator, etc.)?	Organize data in Excel document with rows for each question and columns for each respondent
What codes will help you make sense of your data?	Common themes that emerged: class size, unclear understanding of the directions, skepticism of approach, and time.

Step 3: Organize and Examine Data: Code Counts

Evaluation Question: What are challenges of increasing 1-1 instructional time identified by teachers?

List of codes:

-class size

-confusion or unclear understanding

-skepticism about approach

-time

Codes	New Teachers N =20	Mid-Career Teachers N = 20	Experienced Teachers N =23
Class size	16 (34.8%)	5 (25%)	10 (43.5%)
Confusion in understand.	4 (8.7%)	2 (10%)	3 (13%)
Skepticism	11 (23.9%)	3 (15%)	5 (21.7%)
Time	15 (32.6%)	10 (50%)	5 (21.7%)

Step 3: Organize and Examine Data: Thematic Summaries

Evaluation Question: What are challenges of increasing 1-1 instructional time identified by teachers?

- Class size
  - The examples used in the PL had small class sizes compared to District A. Teachers shared they didn't fully understand or see how the approach could work in their larger classes.
- Skepticism about approach
  - Some teachers shared that they weren't convinced 1-1 instructional time was the best use of classroom time.

"The examples used in the professional development were inspiring but didn't really fit my reality. My classes tend to be a lot larger than the examples we learned about. I didn't really see how it could work in my situation."
A teacher

Step 4: Display Your Data

Evaluation Question: Are teachers increasing one-on-one instructional time with students?

Quantitative or Qualitative	
What different groups do you want to compare? How do you want to look at your data?	Change over time Compare new, mid-career, and experienced teachers
What type of chart will be most appropriate to display your data?	Bar graph

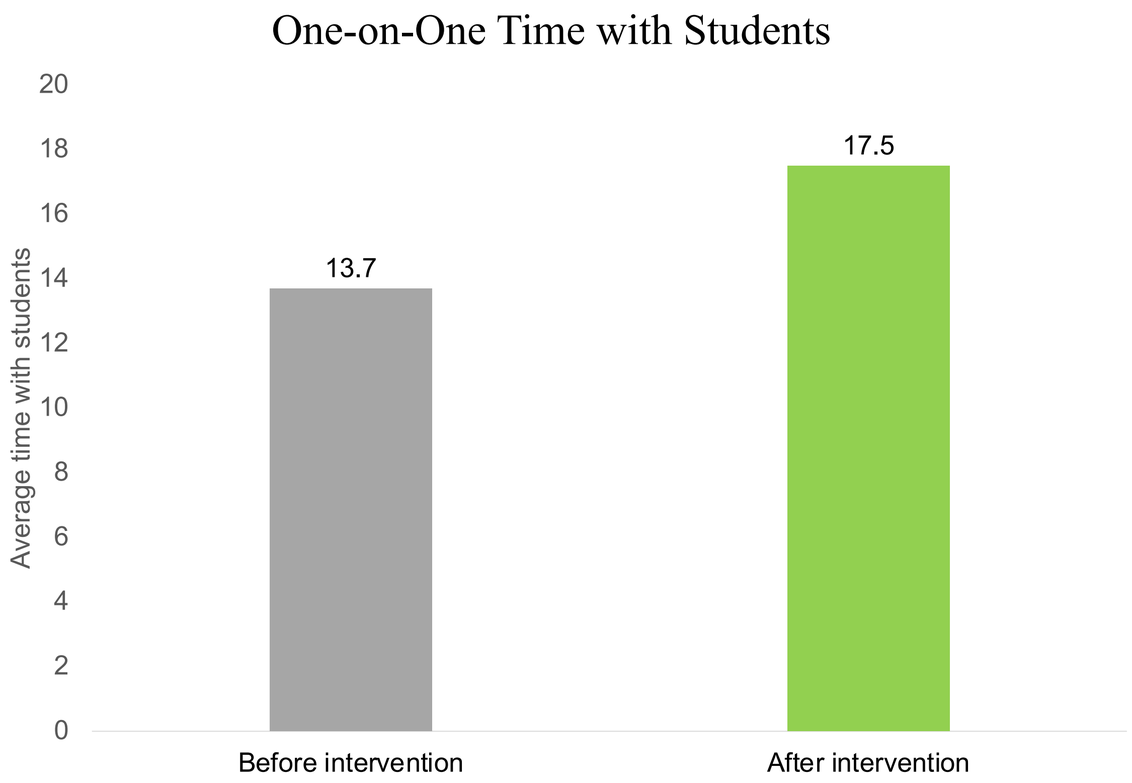
Step 4: Display Your Data

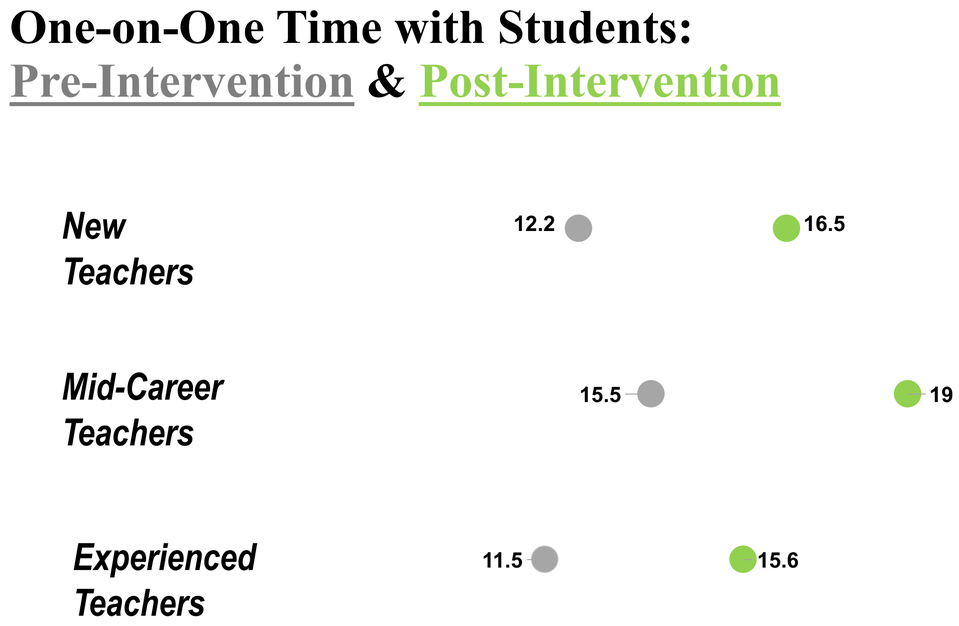
Visualizations to consider:

- Grouped bar charts
- Stacked bar charts
- Pie charts
- Line charts
- Dumbbell plots

Step 4: Display Your Data

Evaluation Question: Are teachers increasing one-on-one instructional time with students?





Step 4: Display Your Data

Evaluation Question: What are challenges of increasing 1-1 instructional time identified by teachers?

Qualitative	
What themes emerged from your data?	Teachers thought the professional development activities were useful, but didn't feel as though they could apply the strategies as easily to their own classrooms
What key ideas support these themes?	Teachers at all experience levels identified class size as a challenge (34.8% of new teachers, 25% of mid-career teachers, and 43.5% of experienced teachers)
Which quotations best illustrate these insights?	The quote on the previous slide adds nuance to the code counts

Applying the Analysis Process

Activity

Identify a set of evaluation questions that are related to each other. For each ask:

- Which data will help us answer this question? (refer to your "aligning evaluation questions with data sources" chart)
  - Is it qualitative or quantitative?
  - Is it representative and complete?
- How will we examine the data?
  - Quantitative: What descriptive statistics would be helpful?
  - Qualitative: Code counts? Thematic summaries?
- Are there groups we want to compare?
- Which charts would be most useful to display your data?

Handout 9: Aligning Evaluation Questions with Data Sources

Next Steps

Next Steps

- Use the data analysis roadmap to analyze your baseline data and create data visualizations for the Collaborative Data Study.
- Ensure the data collection plan is ready for implementation
- Ensure your data collection calendar is accurate and realistic.

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Workshop 4B

IES Institute of Education Sciences

Workshop sequence

Phase 1: Preparing for evaluation

Phase 2: Developing Strong Evaluation Questions

Phase 3: Developing a Data Collection Plan

Phase 4: Making Meaning of Your Data

Today's Objectives

Participants will:

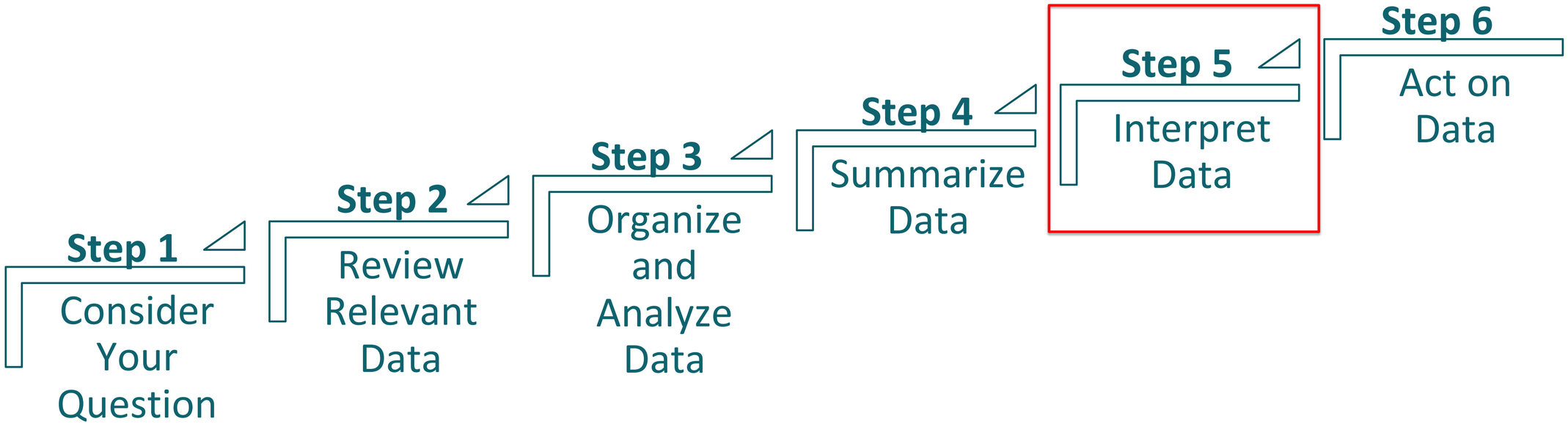
- Learn about the benefits of collaborative data study as part of the evaluation process
- Engage in collaborative data study using baseline data
- Be introduced to tools for planning communication with stakeholders about your data
- Ask any questions they have about implementing their evaluation plan
- Reflect on your experiences participating in this project and what you will take with you in your work

Agenda

- Overview of collaborative data study protocol
- Overview of baseline data visualizations
- Activity: Collaborative data study with baseline data
- Explore a set of questions that can guide you in developing a story about your data
- Revisit your evaluation audiences and your plan for communicating data to different stakeholders
- Discuss next steps for implementing your evaluation
- Reflect on your experiences participating in this evaluation planning process

Overview of Collaborative Data Study Protocol

Overview of the Analysis Process



What are the benefits of collaborative data study?

Engaging in collaborative data study allows teams to:

- Leverage multiple perspectives to interpret data
- Identify any gaps in the data or unanswered questions
- Build a culture of continuous improvement
- Develop a shared understanding about patterns and trends in the data

Handout 11: Collaborative Data Study Protocol

Collaborative Data Study Protocol

Purpose	The Protocol provides a structure to support collaborative analysis of evaluation data to inform decision making about professional development activities and drive continuous improvement.
When to Use	Consider using this quarterly to review data and reflect on progress or select key milestones during the year that would make a data review timely.
Time	45 to 60 minutes
Materials	Compilation or synthesis of raw data, data visualizations
Roles	Facilitators, timekeeper, note taker

Collaborative Data Study Protocol (cont.)

1. **Review** the evaluation questions **(3-5 minutes)**
2. **Predict** what you believe the data will reveal **(2-5 minutes)**
3. **Examine** copies of the data compilations and visualizations **(10 minutes)**
4. **Ask** clarifying questions about the data **(5 minutes)**
5. **Observe** what you see in the data without judgement or interpretation **(10 to 15 minutes)**
6. **Interpret/Infer** what the data reveals **(10-15 minutes)**
7. **Identify** lessons learned and implications for next steps **(10 minutes)**

Observing vs. Interpreting

Observation:

- Stick to simple, factual statements
- Ensure that team members are reading the data accurately

Example: “10% of students in district A are outplaced to other settings, compared to 17% of students in district B.”

Non-example: “Students in district A were more engaged than students in district B.”

Interpretation:

- Look for trends, patterns, and outliers in the data
- Determine what can and cannot be learned from the data

Example: “The percentage of outplaced students across all districts decreased from the 2017 school year to the 2019 school year.”

Non-example: “Because the percentage of outplaced students decreased, there is an increase in inclusive service delivery models.”

Preparation for the collaborative data study protocol

What materials should be prepared in advance?

- Identify question to address
- Identify relevant data to address question
- Create engaging, clear, data visualizations

Activity: Collaborative Data Study with Baseline Data

Step 1: Review

- What evaluation question(s) are addressed by the data?
- What were the data sources?
- How were the data collected?

Step 2: Predict

In the chat, please share:

- What do you expect to see from the data?
- What assumptions do you have about the data?

Steps 3 and 4: Examine and Ask Questions

- Examine each visualization
- What questions you have about the data?

Step 5: Observe

- What do you notice about the data?
- Remember to stick to simple, factual statements

Step 6: Interpret

- What might explain the patterns or themes that you identified?
- What do we need more information on?
- Do the data answer our evaluation question? Why or why not?
- What new questions do you have after looking at the data?

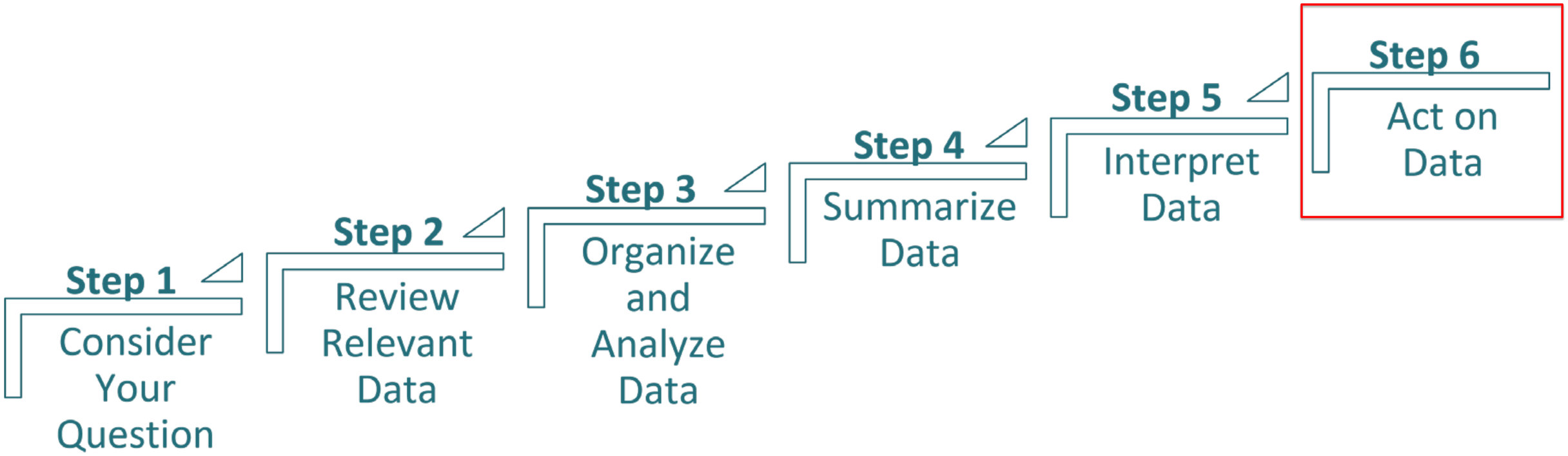
Step 7: Identify

What implications do the data have for next steps?

- How does what you've learned impact the data collection plan?
- Do changes/modifications need to be made to your plan for implementing your professional learning activities?
  - How will those changes be implemented?
  - How will those changes be communicated?

Crafting Your Data Story

Data Analysis Process



Why do we conduct evaluations?

1. Reporting to external and internal agencies
   - Funding
   - Policy
2. Understanding program implementation
   - Improvement
   - Learning
   - Monitoring
3. Understanding program impact
   - Performance
   - Replication or Expansion
   - Discontinuation

Crafting Your Data Story

Guiding Questions:

1. Review your logic model and evaluation questions
   - What problem were you trying to solve?
   - How did you try to solve that problem? (describe your program)
   - What were the goals and intended outcomes of your program?
   - What were your evaluation questions?
   - What information did you collect to answer these questions?

2. What did you learn from your data?
   - Did you meet your goals and intended outcomes?
   - Did you answer your evaluation questions?
   - Were there any surprising findings?
   - What are some key strengths to highlight?
   - What are some areas for improvement?
   - What new questions emerged?

3. What actions are you taking as a result of your data?

Communicating Your Data Story

Communicating Your Data Story

Who are your target audiences?	What do they need to know?	How will they use this information?	What is the best way to communicate this information?	When should this information be communicated?

Communicating Your Data Story

Who are your target audiences?	What do they need to know?	How will they use this information?	What is the best way to communicate this information?	When should this information be communicated?
Coaches	• Progress toward outcomes that relate to coaches and teachers • Information about coach and teacher practices • Strengths and challenges of implementation	• Provide insights about the data and contribute to recommendations for program improvements • Improve their implementation of the program	• Collaborative data study and reflective discussion • Detailed summaries of data • Brief written summaries of key takeaways and implications for practice	• Quarterly coach meetings
Assistant superintendent for teaching and learning	• Progress toward outcomes • Participant reactions • Success and challenges • Information about the cost-benefit	• Make decisions about program resources and staffing • Make changes to program implementation • Make decisions about the future of the program (scale up, sustainability, or discontinuation)	• Memo • Report • Presentation and discussion at a leadership team meeting	• Quarterly memo • Annual report • Annual presentation and discussion

Next Steps and Closing

Next steps

- Do any modifications need to be made to your data collection plan based on your first data analysis cycle?
- Consider revisiting your logic model based on what you've learned so far. Are revisions needed?
- When will you come together again to collaboratively analyze new data?
- What other questions do you have about your evaluation plan?

References and resources

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