BEHAVIORAL SCIENCE RESEARCH INSTITUTE

1000feathers

SLOWING DOWN THE ‘SCIENTIFIC METHOD’ FOR NON-SCIENTISTS

1000 FEATHERS & BEHAVIORAL SCIENCE RESEARCH INSTITUTE, INC.

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FOREWORD

A note on engagement and connection

At 1000 Feathers and the Behavioral Science Research Institute (BSRI) we share a belief that transformation only happens when all voices are heard, when equitable opportunities for contribution and input exist, and when everyone feels shared ownership of the path forward. Within our organizations, values like respect for human diversity, community collaboration, and inclusivity are realized in our engagement and connection practices. At 1000 Feathers we often say that we operate as natural extensions of our clients and partners, working with them, not for them. At BSRI there is a similar approach to serving partners through a collaborative and community-centric approach to solving critical public health problems.

Slowing down the 'scientific method' for non-scientists

If we remember way, way back to any of our high school science classes, we might remember learning about the scientific method. The scientific method is an empirical process for developing knowledge that involves crafting a research question, conducting background research, formulating a hypothesis, running an experiment, analyzing data, and reporting conclusions. In college that learning likely extended to all the different types of research, evaluation, monitoring, and if we were lucky, how to gather information in ways that were participatory and community-based. And by now with years of experience under our belts we are able to talk fluently about all the times that our efforts to engage in empirical research, summative evaluation, and youth participatory action research has been wildly successful, failed miserably, and everywhere in-between. This is to say, we feel you, we see you, and we have been there too.

It is our belief that for those working in community-based environments, to generally increase data-driven work, or to bridge academic and community settings, improving our processes will help us all achieve better results. Decades of collective experiences and reflection have noted five areas where more time and attention could be given to extending our shared learning further to help "slow down the scientific method."

In Part 1, **So you think you need to collect some data...,** we emphasize the importance of taking the time to think through what it is that we want to know (i.e., defining the question).

2 Throughout Part 2, **Developing your data collection strategy**, we create space for intentionally developing quality data collection instruments (e.g., surveys, interviews, focus groups, and other tools).

3 Within Part 3, **Analyze your data**, we provide themes and quick takeaways for qualitative and quantitative data.

4 In Part 4, **Share your findings**, we walk through considerations for thoughtfully distributing our findings.

5 And finally, in Part 5, **The latest tech and tools**, we highlight products and equipment to support us through these steps.

Whether you are looking for support in any of the individual parts or whether you are a team or solo researcher, evaluator, strategist, analyst, or friend-of-the-data-cause who is looking to build skills across the entire 'scientific method', this resource is for you. And whether you reside in government, bridge academic-community settings, sit entirely within community environments, or somewhere across them all, slowing down our 'scientific method' to improve our processes will help achieve better results.

PART 1

So you think you need to collect some data...

Let's begin with a short story. In a mid-sized city, near a neighborhood with a regional university, a group of concerned citizens partnered with a university researcher to design an empowerment and educational program for local youth. Their goal was to understand young people's needs, challenges, and opportunities in their community. Eager to gather data, a survey was created to meet the community's goal of better understanding the need.

As survey distribution began, the citizens and researcher collecting the data noticed several issues. Some of the young people faced literacy challenges, and the survey's complex questions became barriers to

participation. Additionally, some topics within the survey asked about sensitive issues like mental health and personal struggles, making respondents uncomfortable with providing written responses to people they had never met before. Not only did the group of citizens and the researcher collecting the data not reach their target number of surveys, but many of the surveys were also incomplete.

You probably see where we are going here. This community had good intentions but a challenge that we sometimes face is that we don't spend enough time thinking through what the best process and instrument[1] is to answer the question(s) that have been identified. In many cases – including our fictitious story – we jump right into using a convenient tool to answer any and all question(s). We call this putting form over function, meaning that we prioritize the structure of something over the function, purpose, or goal. To help with this challenge, we've put together a list of considerations for all of us data-driven folks to help think through and determine what might work to answer our most pressing questions.

While the list below covers a lot of ground, it's not an end-all-be-all list. There are likely other considerations that you'll want to think through that are important for your specific issue, setting, and environment. Additionally, this is not a data collection or methods list. Methods might, however, start to come up as you consider how best to answer your question(s), but mostly what we hope this list will do is help you think through your question(s) and the context surrounding it (function) so that you can determine the most appropriate research, evaluation, or data collection measures.

Data Collection: Understanding your Question and Context Method

1. Defining the question and question complexity: First and foremost, it's crucial to define your question(s) clearly. What do you (really) want to know? What are you trying to achieve? What is the purpose of the question(s)? Knowing the *why*, as some might say, is crucial as it will guide the rest of our decision making to determine how we should get answers to our question(s). Additionally, you should examine the complexity of the question(s) you intend to ask. Is the question(s) straightforward? How much information will you need to answer your question? Will it take multiple sources of information to answer your question?

Did you know?

[1] An instrument is a tool that helps researchers and practitioners collect information from people to understand their thoughts, feelings, behaviors, or experiences. We are giving you a quick definition here because we use this term throughout this document. We also use it interchangeably with "tool".

If you need some guidance, these are some different types of questions and the methods that usually support answering them with data.

Exploratory Questions	Used to understand new or unclear issues. Best suited for interviews or open-ended survey questions. **Example:** "What challenges do families face when trying to access affordable and healthy food?"
Descriptive Questions	Focus on detailing specific experiences or conditions. Often addressed through observations or focus groups. **Example:** "What are the daily experiences of staff working at food distribution centers?"
Comparative Questions	Examine differences between groups or settings. Can use a mix of interviews and group discussions. **Example:** "How do residents in urban neighborhoods describe their access to fresh produce compared to those in rural areas?"
Explanatory Questions	Seek to explain why patterns or trends occur. Combine qualitative methods with insights from numerical data. **Example:** "Why do some families rely more on food assistance programs than others?"

2. Actions, decisions, and response rate: A clearly defined question is an excellent start to getting answers, and we also want to be clear about what we hope or intend to do with that information. In other words, what actions do we intend to take or what decisions do we intend to make with this information? And, how much information do we need to know to take action or make a decision? If we hear from 10 people is that enough (in some cases, it might be!)? Is hearing from 10,000 people enough? While you might have a broad question (e.g., Is this program working?) and a clear, intended action (e.g., retain or remove program funds), you might have different response rates as you seek answers from various populations and sources. The point here is to be clear about knowing what a meaningful response rate is for your question(s), action, and/or decision and making a plan to get there.

3. Target population or source: Identifying from whom or where you are seeking answers is paramount. Depending on your question(s) and its complexity, you might be seeking answers from a specific group of people (e.g., adults receiving mental health services), from a specific source, (e.g., United States Census Bureau), or both. You'll want to be clear about the people and/or sources from which you will be gathering information and consider factors such as relationships, size, accessibility, and willingness to engage in data collection when working with people and time, capacity, skills, and resources when working with secondary data sources.

4. Anonymity, confidentiality, and privacy: Whenever we seek answers to some of our most pressing questions, and it involves gathering information directly from people or sources about people, we need to be cognizant of anonymity (i.e., being unknown), confidentiality (i.e., protecting privileged information), and privacy (i.e., human right). Our efforts to answer questions should prioritize anonymity, confidentiality, and privacy and have protections in place when questions involve sensitive or personal information or protected persons or groups.

5. Ethical reflections: Taking anonymity, confidentiality, and privacy considerations a step further, there may be ethical policies and practices to examine for questions regarding specific topics or populations (e.g., medical treatment experiences; young children). Policies and practices like informed consent and offering counseling might be necessary for your specific question and population and it's essential to know if and when these special protections are necessary.

6. Data type, format, and expertise: At this point it might be helpful to begin thinking about the type of data that you'll need, the format it may come in, and if this may require some additional expertise. Generally, depending on the thought that's been given to the considerations above, you might be thinking that quantitative or qualitative data is better for your question (data type). Furthermore, there may be formats within these data types that best meet your needs and opportunities. Moreover, when thinking about specialized formats, expertise from researchers and community members could be necessary (i.e., clinical trials, photovoice).

7. Time, resources, and feasibility: Getting into conversations about data type, format, and expertise may feel like you are selecting a specific data collection method. And that might be appropriate for you, but thinking through the time, resources, and feasibility might also provide some additional insights into the best way for you to answer your question(s). You'll want to

consider both limitations and opportunities across time, resources, and feasibility to ensure that you not only account for the aspects within your context that might constrain your ability to answer your question(s), but also the aspects that might create favorable circumstances to collect information in non-traditional ways.

8. Data collection and analysis: Consider the necessary human, physical, and other resources to collect and analyze the data that you think you'll need to answer your question(s). Data collection and analysis varies wildly based on the types of questions we are asking, the decisions we want to make, where we hope to get our information from, and the time, talents, and treasures we have to invest in our collection and analysis. For example, an evaluation of a six-week summer school program to teach high school students how to drive funded by a local school district will look very different from a research study that investigates the causes of opioid addiction in the United States funded by the Bill & Melinda Gates Foundation. You'll want to ensure that you can collect and analyze data to answer your question(s), including whether collecting data at multiple time points is needed and/or feasible.

9. Pilot testing" and feedback: By this point you'll likely have put a lot of intentional thought and time into the question(s) you are seeking to answer and some of the realities of answering that question. One final step prior to selecting the most appropriate method (or methods) to answering your question(s) is to "pilot test" the decisions you've made and the insights you've gathered with others that might be impacted by the work that you are doing or that might help with the work that you are doing. You may have worked alongside these voices already, and that's even better. But if not, now is a great time to get their thoughts and feedback and bring these voices and potential partners into the work you are doing.

Most of us are not creating tools and gathering information just to check things off our list; we do these things because we value our work and the potential to have real and lasting impact. And in that spirit – of working alongside people and partners to transform our organizations, coalitions, communities, and/or systems – we sometimes need to slow down our journeys so that we can chart our paths forward with a clearer sense of the challenge and who should be involved. In this specific context, taking the time to walk though these pre-method considerations will help us ensure that we get the best possible answers to our question(s), make data-driven decisions, and take well-informed actions.

And if after all of that, data collection is still in your future, be sure to check out Part 2 – *Developing your Data Collection Strategy* – for some guidance as you craft your instrument(s).

PART 2

Developing your Data Collection Strategy

Developing your data collection strategy is not a completely separate aspect to the topics covered in Part 1 - *So you think you need to collect some data...* But, once you have laid out the research, evaluation, or questions of inquiry that are most pressing, the logistics and resources you have, and the target population for sampling, you should be in a good place to move forward into selecting a data collection tool or creating your own.

The key to a strong data collection strategy is crafting high-quality measurement tool items and response choices (when applicable) that maximize utility and minimize bias and low response rates. To help meet most of us where we are, we are going to spend our time on two data collection strategies (Part A. Survey and Part B. Interviews and Focus Groups) and one pitfall (Part C. Minimizing Bias) to watch out for as these are used and come up frequently.

If you think you might not have to create your own tool (e.g., the construct you are measuring is common), you can take these steps and save a lot of time!

1. **Search the literature** to find studies similar to yours (both in terms of goals and population).
2. **Extract the constructs** (or measurement scales) described and determine which (if any) are relevant for your population (e.g., "motivation to succeed" or "classroom engagement").
3. **Consider readability**, sensitivity of questions, language or mode of delivery and propensity towards social desirability.
4. **Review access and cost**, some instruments are restricted and cannot be used without granted permission or paying for licensing rights.
5. **Supplement as needed,** in some cases, if the construct is newer or has not been widely researched, a survey or questionnaire that is valid and reliable might not exist in the literature. If instruments are not available in the peer reviewed literature, you may need to build your own tool, by selecting items from widely available instruments, or creating your own items (see below). Including diverse perspectives (team members, stakeholders) in this process is critical.

A. Survey (aka quantitative/fixed response data)

Surveys continue to dominate research, evaluation, and other data collection methods for several reasons, namely it tends to be cost-effective and produce large amounts of data ideal for drawing conclusions about a sample. But understanding the broad pros and cons for this method are helpful before moving forward. The table below offers some advantages and disadvantages to surveys that you can review before making your final decision.

Advantages	Disadvantages
▸ Can represent a large population effectively. ▸ Cost-effective, especially when using online or paper-based questionnaires. ▸ Can be administered in various ways (online, mail, telephone), offering flexibility and convenience. ▸ Sampling and sufficient sample size can lead to statistically significant results that are generalizable. ▸ Can provide precise data on specific variables, aiding in accurate analysis. ▸ Can be designed to be anonymous, encouraging more honest and candid responses from participants.	▸ Once a survey is finalized and distributed, altering its structure or questions is challenging. ▸ Respondents may not provide accurate or honest answers, especially on sensitive topics. ▸ Survey design, question phrasing, and respondent selection can introduce biases. ▸ Closed-ended questions may restrict the depth or nuance respondent's can answer with. ▸ Surveys often suffer from low response rates, which can impact the representativeness and reliability of the data.

If you reviewed the table above and using fixed response items in a survey is still your best data collection method, this section is imperative. The ultimate goals here are to improve the respondent or participant experience with our survey and to increase the quality of our surveys. You might be thinking that the focus on writing quality survey items is just not that important, or not that hard, but stick with us because we want to show you just how much goes into what it takes to respond to a question and what a difference a quality survey item can make.

Let's start out with a few examples. Read the following two items and their response options.

How old are you?	Which age range do you fall into? 18-24 | 25-34 | 34-44 45-54 | 55-64 | Unsure
How did you respond to this question? Did you give your age in years? Did you cringe at doing the math when a parent said their child was 30 months?	*How did you respond to this question? Which option did you select if you were 34? What if you were older than 64? What if you don't want to answer?*

Ugh. These items and the response options are not fun for a respondent or participant, and they are not fun for the information seeker either. When we put together items and response options, we need to consider what it actually takes to respond to a question. It is not always as straightforward as it seems.

What does it take to respond to a survey item?

- I have to understand the item/question.
- I have to be able to recall any relevant behavior.
- I need to be able to map my decision or conclusion onto the item or question response options provided to me.

How can I write excellent survey items?

Our goal here is to be able to craft the best survey possible, and to do that we'll provide some advice that covers mostly technical aspects of writing survey items but also a few process pieces as well. The benefits of developing this skill – writing quality survey items – is that it extends beyond the survey instrument to other data collection tools and methods as well. Many of the lessons and tips are applicable to writing items and questions for focus groups, interviews, observations, and others. While the advice on survey items will not cover every specific situation and scenario, it will provide a solid guide and foundation to put together your survey items. Here we go!

1. Sketch out a survey plan: You will want to map out what actions or decisions you are hoping to take or make from the survey and what areas of exploration are *need to know* versus *nice to know*. This will come up again at the very end, but you will want to review each item and decide if it should be revised, removed, or retained.

2. Thematically organize your survey items: After sketching out your survey plan, it is helpful to create an outline of the major themes within the survey. The themes can then be used to organize the items or questions; and those same themes are beneficial section titles (use **bolding**, colors, and font size to highlight them).

3. Ensure item or question clarity: Survey items should be written so that the respondent or participant understands the question and what is being asked of them. Question clarity means that your items ask about one concept at a time, include reference points to frame responses (e.g., since January) when applicable, and use context-specific language (e.g., name of organization or program).

4. Carefully craft your question and response options: Generally speaking, it is important that when crafting response options for survey items that we think through all potential responses. This might mean literally including an *all-of-these-apply* response, or including an option for *Not listed above*, *None of the above, Not applicable*, and/or an opportunity to write in a response. You will also need to make sure that respondents or participants can easily select *one* answer.

5. Ensure phrasing is objective: Leading and biased items can not only prompt respondents or participants to answer in a particular way, but the questions also have the potential to make the respondent feel judged or criticized. Along the same lines, qualifying adjectives – such as *good* person or *bad* program – should not be used in survey items or question phrasing.

6. Be culturally reflective and inclusive: Write items to mitigate the risk of confirming any negative labels about an individual's racial, ethnic, gender, or cultural group). Depending on the nature and scope of your survey, personal demographics may be best at the end of your survey, and it is always best to replace *Other* with *Not listed* (and to include an option to write in their information) for cultural groups.

7. Format consistently throughout your survey: One of the ways that you can ease the experience of and navigate your respondents or participants throughout your survey is with consistent formatting. Each section, including the headings and directions, should be structured similarly. Response options should consistently range from least favorable to most favorable. And use *italics*, **bolding**, and/or color consistently to highlight sections, directions, headers, or key words.

8. Seek feedback and/or pilot test your survey: Involving others, such as potential respondents, colleagues, and content experts in a feedback session can help you consider questions like, *Do they understand the questions as intended?*, *What is their survey-taking experience?*, *Is the reading level appropriate?* and *Is there something important we have not asked about?* Feedback is often provided within survey creation platforms, and you can assess the reading level of your survey or individual items within documents and survey creation platforms.

After reading about what it takes to respond to survey items and how to write quality survey items, we hope you are (more) confident in your ability to write great survey (or any data collection tool or method) items.

B. Interviews and Focus Groups (aka qualitative/open ended data)

Qualitative data collection is about understanding people's experiences, feelings, and ideas. It focuses on "why" and "how" things happen, using methods like interviews, focus groups, observations, or open-ended survey questions. These methods uncover deeper insights that numbers alone cannot show. These strategies are a great addition to numbers; to add more detail to the story behind the trends. Qualitative data collection can be designed within an existing instrument, such as a survey (e.g., open-ended questions) or as a stand alone tool such as a focus or interview guide or an observations notes guide.

Crafting quality questions are the foundation of qualitative data collection. They guide what you want to learn and help you choose the best methods to gather insights. Clear, open-ended questions keep the data collection focused and ensure the right tools are used. The table below offers some advantages and disadvantages that you can review to determine if qualitative data collection is right for you.

 **Advantages**	 **Disadvantages**
▸ Provides nuanced insights and deeper understanding of participants' thoughts and experiences. ▸ Allows for the discovery of new or unforeseen perspectives and ideas. ▸ Offers the ability to explore complex topics without constraining participants' answers.	▸ Requires significant time and effort to code and analyze responses compared to quantitative data. ▸ Responses can vary widely in detail and relevance, making it harder to identify consistent patterns. ▸ Qualitative data is often specific to the sample and context, limiting its generalizability to broader populations.

Advantages	Disadvantages
▸ Gives respondents the freedom to express themselves in their own words, leading to more authentic data. ▸ Adds context to responses, which can help explain patterns or trends in quantitative data.	▸ Participants may find open-ended questions more demanding, which could discourage completion or lead to superficial responses.

If you reviewed the table above and using open-ended response questions is your best data collection method, this section is imperative. The ultimate goals here are to improve the respondent or participant experience with our qualitative data collection so they feel comfortable and engaged throughout the process.

What does it take to respond to an open-ended item?

- I have to understand the item/question.
- I need to reflect on my experiences or beliefs to formulate a meaningful response.
- I must organize my thoughts and articulate them clearly in written or verbal form without prompts or predefined options.

How can I write excellent qualitative items?

Once you have identified your data collection questions, the next step is to create specific items for your interviews, focus groups, surveys, or observations. These items should be designed to encourage participants to share detailed insights or help you, as the researcher, evaluator, or data collector, focus on key aspects during your observations. Writing strong items and prompts is key to collecting useful information for empirical research, evaluation projects, community-based efforts, or general data-driven work.

Interview and Focus Group Guide Questions

1. Start Broad, Then Narrow Down: Begin with general questions to make participants comfortable, then move to more specific topics.

- **Example:** "Can you describe your usual grocery shopping experience?" → "What challenges do you face when shopping for fresh produce?"

2. Use Open-Ended Questions: Avoid yes/no questions to encourage detailed responses.
   - **Example:** "How do you decide which foods to buy for your family?"

3. Avoid Leading Questions: Keep questions neutral to avoid influencing answers.
   - **Example:** Instead of "Do you struggle to find affordable fresh food?" ask "How would you describe the affordability of fresh food in your area?"

4. Keep Questions Clear and Simple: Use language that is easy to understand and avoids jargon.

Observation Note Questions

1. Identify Key Behaviors or Interactions: Focus your observations on specific actions, interactions, or events.
   - **Example:** "How are staff and community members interacting during food distribution?"

2. Look for Environmental or Contextual Details: Pay attention to the setting and any relevant factors.
   - **Example:** "What is the physical layout of the food distribution site, and how does it affect the flow of people?"

3. Note Patterns or Repeated Behaviors: Keep an eye out for recurring actions or situations.
   - **Example:** "What common challenges do families appear to face when receiving food?"

4. Remain Neutral and Descriptive: Avoid interpreting behaviors during the observation phase.
   - **Example:** Instead of "Why are staff unhelpful?" note "Staff provided instructions but did not assist with carrying food items."

Open-Ended Survey Questions

1. Make Questions Specific: Broad questions can confuse respondents. Focus on one idea at a time.
    - **Example:** "What are the top three reasons you shop at your preferred grocery store?"

2. Encourage Detailed Responses: Use prompts like "Please explain why" or "Describe your experience."
    - **Example:** "How was your experience using this food distribution site?"

3. Ask for Suggestions or Feedback: Questions about improvements or ideas can generate valuable, actionable insights.
    - **Example:** "What suggestions can you make for improving food distribution sites in Miami?"

4. Limit the Use of Multi-Part Questions: Avoid overwhelming participants by combining too many questions into one.
    - **Example:** Instead of "What foods do you buy, and how do you decide what is healthy and affordable?" break it into two questions.

These tips help ensure your items or prompts are engaging, clear, and effective for gathering valuable insights in a variety of research, evaluation, or other data collection settings. Whether you are conducting interviews, observing interactions, or collecting survey responses, well-crafted questions will guide your work and help you collect meaningful information to inform programs, policies, practices or further areas of inquiry.

C. Minimizing Bias

Whether you have chosen to follow “Path A”, “Path B,” or some combination of the two, minimizing bias is key to ensuring your results are trustworthy and accurate. Below is a table showcasing some common types of bias and practical ways to avoid or reduce them in your methods.

Bias Type	Description	Tips to minimize it
Non-Response bias	Happens when certain people do not participate in your data collection, leading to data that may not fully represent your group or community.	▸ Communicate clearly about why you are collecting data and how it will be used. ▸ Send personalized or customized invites to recruit participants, and follow up with reminders for those who have not responded. ▸ Keep the data collection short to improve response rates, and let participants know upfront how much time it will take. ▸ For sensitive topics, let participants know their responses will be anonymous or confidential.
Social Desirability Bias	Answering in a way that reflects socially acceptable behaviors, rather than truthfully.	▸ Avoid wording questions in a way that suggests there is a "right" answer. ▸ Let participants know their responses are anonymous or confidential to reduce fear of judgment.
Order-effect Bias	Happens when the order of questions influences how participants respond.	▸ Be mindful of the sequence of questions. Avoid starting with very specific questions before asking general ones. ▸ Test your survey or interview guide with a small group first to identify any unintended priming effects or biases in the question order.

What's the Difference Between Anonymous and Confidential?

- **Anonymous:** No identifying information (like names, contact details, or any traceable data) is collected. Responses cannot be linked back to individuals.
  - **Example:** An online survey with no request for personal details.

- **Confidential:** Identifying information is collected but is protected. Only the research team can see the data, and it will not be shared or reported in a way that reveals individual identities.
  - **Example:** An interview where names are collected but removed before sharing findings.

By keeping these types of bias in mind and implementing these strategies, we can improve the quality of your data and ensure our findings better reflect the communities and individuals we are working with.

PART 3

Analyze your Data

You have done the work to carefully plan your questions, design your tools, and collect your data—well done! Now it is tim
e to bring it all together by analyzing the information you gathered. This step is about turning your data into insights that help you answer your most pressing questions, understand key patterns, and inform your next steps.

In this section, we break down the process into two practical approaches:

- Quantitative Analysis (Part A): Working with numbers, statistics, and visualizations to summarize trends, comparisons, and outcomes.
- Qualitative Analysis (Part B): Exploring themes, patterns, and stories within your data to bring deeper meaning and context to your findings.

Whether you are cleaning spreadsheets, running basic calculations, or identifying key themes from open-ended responses, we will guide you through clear, approachable steps to make sense of your data. By the end of this section, you will feel confident in preparing, exploring, and analyzing your data—transforming raw information into meaningful findings that you can use to take action and tell your story.

A. Quantitative Analysis Approach

Quantitative analysis is all about working with numbers to identify trends, patterns, and key findings in your data. While spreadsheets and statistics might feel intimidating at first, this section will guide you step-by-step through preparing, exploring, and analyzing your data in a clear and approachable way. We will cover essential techniques like cleaning your data, calculating summary metrics, and visualizing results using tools like Excel. Whether you are summarizing survey responses, comparing outcomes, or identifying trends, this section will help you turn numbers into insights you can use.

Preparing Your Data for Analysis (Data Cleaning)

Before any statistical analysis occurs, most data must be prepared to ensure quality. In most cases, a raw dataset is messy: spreadsheets may include extra notes and text information that statistical analysis software cannot read, some of the respondents' answers (rows) may be nonsense, and some of the

variables in raw form (columns) might not make sense. Data cleaning is the process of fixing or removing incorrect, corrupted, incorrectly formatted, duplicate, or incomplete data within a dataset. The goal of cleaning data is to make analysis more efficient and create a more manageable dataset.

Tips when cleaning data in Excel:

1. Ensure the first row contains a unique header for each column, and all rows below the column header hold consistent data types (e.g., all numbers with the same characters before and after decimals). You can also find and remove duplicates if appropriate.

2. Convert your data range into a table before analyzing, sorting, or filtering data. This will support you during analysis by making data sorting and filtering much easier and applying consistent formatting. Table format also means your formulas, charts, and PivotTables automatically adjust when data changes. Steps to Convert Data to Table Format:
    - Select Your Data: Highlight the range, including headers if applicable.
    - Go to the "Insert" Tab: Click Table in the Tables group.
    - Confirm Settings: Ensure the range is correct and check "My table has headers" if needed. “Click OK”

Exploring your data

If the thought of math and numbers gives you immediate anxiety, you are not alone and we’ve been there too! You may prefer to use alternative tools that involve artificial intelligence or large language models to support you in analyzing your data. If that’s the case, you can skim here and head down to Part 5. Another option might be to use a data collection platform with built-in analysis capabilities (e.g., Alchemer, SurveyMonkey, or Qualtrics). Otherwise, feel free to try out these techniques.

- Sort and Filter: Use these features to explore subsets of data quickly.
- Conditional Formatting: Highlight patterns, outliers, or specific trends in your data.
- Analyze Data in Excel empowers you to understand your data through natural language queries that allow you to ask questions about your data without writing complicated formulas. In addition, Analyze Data provides high-level visual summaries, trends, and patterns. Select a cell in a data range > select the Analyze Data button on the Home tab. Type in your question (e.g., *Do scores improve on mental health stigma?*).

    - Keep in mind that to answer this sample question, data would either need to be in numbers, or scoring would need to be explained (e.g., for columns A-K, a score of 0 is the lowest and a score of 5 is the highest).
- Use formulas like SUM(), AVERAGE(), COUNT(), and MAX()/MIN() to calculate key statistics.
- Use Pivot Tables for calculating, summarizing, and analyzing data. It lets you see comparisons, patterns, and trends in your data.
- Create data visuals with Excel
    - Bar/Column Charts for comparisons.
    - Line Charts for trends over time.
    - Pie and Donut Charts for proportions (use sparingly).
    - Use Pivot Charts for data visualizations and dynamic data insights. Add slicers to PivotTables/Charts for easier filtering and interaction.

B. Qualitative Analysis Approach

Making Sense of Your Data: Two Approaches to Analysis:

Once you have collected your qualitative data—interviews, focus groups, observations, or stories—the next step is making sense of it. There are two ways to think about this:

- Exploratory Analysis: When you want to see what themes naturally emerge from the data.
- Focused Analysis: When you already have specific questions or ideas you want to test.

Both approaches help transform raw information into meaningful findings that can guide action.

Exploratory Analysis: Letting Themes Emerge:

Sometimes, the best way to understand your data is to start broad and see what patterns emerge. One way to do this is by using a step-by-step approach called the Data Analysis Spiral (Creswell & Poth, 2018). This method is helpful when you do not have pre-existing categories or themes in mind, but want to explore what the data is telling you.

How It Works:

1. Organizing the Data: Gather your interviews, notes, or documents in one place. Review them to get a sense of what is there.
2. Reading and Reflection: Read through the data multiple times. Take notes about what stands out.
3. Describing the Data: Start grouping similar ideas together. What are people talking about? What words or phrases keep coming up?
4. Interpreting the Patterns: Step back and ask: What do these patterns mean? What stories are being told? How do different perspectives fit together?
5. Presenting the Findings: Write a summary of the key themes and include direct quotes or examples to bring them to life.

Focused Analysis: Answering Specific Questions:

In some cases, you already know what you are looking for. You might have specific research questions based on community needs, prior research, or program goals. A practical approach to analyzing this kind of data is Rapid Qualitative Analysis (RQA). This method allows you to quickly organize and interpret data while staying flexible.

How It Works:

1. Start with Your Questions: Write down key research questions or ideas you want to test. These might come from community concerns, past evaluations, or program goals.
2. Organize Your Data: Create a space (a document, slide deck, or physical board) for each research question. As you review your data, sort examples into these categories.
3. Discuss and Refine: Work as a team to go through the data. What examples support or challenge your initial ideas? Adjust your categories as needed.
4. Identify Patterns: Look for common themes or surprising findings. Group similar responses and highlight key takeaways.
5. Synthesize Findings: Turn what you have learned into a clear, actionable summary. Use quotes, paraphrased examples, or visuals to illustrate key points.

How to Make This Process More Effective:

- Approach Data with an Open Mind: Be prepared for findings that might challenge your expectations. Unexpected insights can be just as valuable as confirming ones and are particularly important in crafting recommendations.
- Use Visual Aids: Try mapping ideas on a whiteboard or using sticky notes to see connections between different themes.
- Bring in Different Voices: Involve community members or stakeholders in reviewing and interpreting the data. They can provide additional context and help ensure the findings resonate with lived experiences.
- Turn Findings into Actionable Knowledge: Do not stop at description—ask: What does this mean for decision-making? What should change as a result?

Bringing It All Together: Turning Findings into Meaningful Change:

Regardless of whether you take an exploratory approach (looking for themes) or a focused approach (answering specific questions), what happens after the analysis is just as important as the analysis itself.

- Judgment Matters: After identifying themes, reflect on their meaning. What do the findings say about the success, challenges, or impact of a program?
- Local Context Shapes Meaning: The same finding might mean different things in different places. What do community members say about how these insights apply to them?
- Telling the Story: Quotes and visuals help make findings relatable and memorable. They turn numbers into narratives and ensure the data speaks to real experiences.

For those interested in diving deeper into the practical application of qualitative analysis in evaluation, Utilization-Focused Evaluation by Michael Quinn Patton (2008) provides additional insights on making findings meaningful and actionable.

PART 4

Share your findings

Did you know that there is an entire field of practice, study, and science dedicated to dissemination? While the word 'dissemination' is sometimes used synonymously with 'sharing out', dissemination is defined as a set of strategies to *spread* evidence-based interventions within a specific setting to a specific

audience (this is not be confused with dissemination's close cousin, implementation, which involves strategies *to use* evidence-based interventions).

The good news for us is that you and I are not here for doctoral degrees in dissemination, but we are here to talk about how important it is to share our findings, lessons, conclusions, work, etc. from our data collection efforts. Although we are working hard alongside our people and partners, too often, we neglect to think through what it actually means to engage and connect back with what we have found, learned, decided on, or acted upon. Let's examine what this engaging and connecting back means, and how we can ensure this becomes standard practice in our work.

Considerations as you share your findings

We have all heard it before – a 100-page report sitting on a shelf, an old plan in a three-ring binder collecting dust on the bottom of our bookshelf, a virtual assessment with too many tables and graphics. But not here, not us. We are going to continue on this path of transformation by creating an environment in which those doing the work have a role to play in sharing what was found, learned, decided on, or acted upon. While this is likely not an all-inclusive list, it is a starting point for you and your partners.

1. Values, practices, roles, and responsibilities: Likely, your work and partnership stems from a common purpose and set of values or principles to drive what "meaningfully sharing findings" means. It is helpful to know the persons, organizations, coalitions, communities, and/or systems that are responsible for the specific aspects of data sharing. Sometimes a data and/or data sharing committee can be helpful to ensure the knowledge, skills, capacities, and abilities are in place to support data sharing.

2. Data ownership, sharing, and storage: If you have data already, you might have addressed some of these aspects (and wonderful if you did!), but if not, these are especially important conversations to have when you are working with organizations, coalitions, communities, and/or systems and when you may have sensitive or personally identifying data. What partner will have control over the data? How will data be stored and shared? How will data be destroyed when it is no longer needed?

3. Data usage (e.g., presentations, funding applications, websites): You and your partners might benefit from identifying data sharing opportunities that fall within the collective's values and practices. In these cases, clear guidelines on data sharing in ways that benefit partners and are aligned with the group's values and practices will be helpful.

4. Audience engagement and storytelling: Tailoring your communication approach to reach your identified audience through their preferred channels, such as social media, newsletters, or community gatherings is critical. Use the power of storytelling to convey your findings in a relatable and compelling manner and can create a more meaningful and impactful data sharing experience.

5. Authors, acknowledgements, and contact information
   Whether through the values and practices, roles and responsibilities, a data sharing committee, or other process, it can be helpful to know in advance how the work should be cited and who people can contact for more information. Too often, we fail to consider all of the people and partners that it took to get to the point of data sharing, and we can recognize those individuals and groups through authorship and acknowledgements. Addressing these issues clearly and proactively is crucial to maintaining positive working relationships and clear boundaries.

6. Process for data discussions, disagreements, and discontinuation: Some groups may desire and benefit from a specific space and place for raising and resolving differences. This may be especially important if you and your partners are asked to share out your data and there are differences on whether or not the collective should participate in that opportunity. Consensus-driven discussions and communication will be important to hear from everyone, arrive at a decision, and to communicate back to the entire group.

7. Review and feedback loops: Wait, you want me to collect data about sharing my data? Well, not exactly. But maybe sometimes. Establishing effective review and feedback loops is essential to ensure that your data sharing efforts are impactful. You can create mechanisms for collecting feedback from your identified audience, whether it's formally through surveys or community meetings, or in the background through web analytics. This type of feedback can help refine your approach, improve engagement, and enhance the relevance of the information that you share.

Data Products and Tools for Sharing Your Findings

Sharing your findings effectively is about choosing the right tools and formats to connect with your audience. Whether you are working in academic, organizational, or community-based settings, there are versatile data products and instruments that can help you turn your findings into actionable insights. The table below highlights a range of data product types, their purposes, and recommended tools or resources to help you decide what works best for your goals and audience.

Data Product	Purpose	Recommended Tools/Resources
Dashboards	Visualize key metrics and trends for quick analysis and decision-making.	Google Looker Studio, Tableau Public, Microsoft Power BI Free
Reports	Provide detailed analysis and insights in a structured format.	Microsoft Word, Canva, Adobe Acrobat
Data Visualizations	Illustrate complex data patterns for better comprehension.	Excel, Tableau Public, Chart.js
Infographics	Communicate key insights visually to non-technical audiences.	Canva, Venngage, Piktochart
Interactive Maps	Show geographic trends or program impact.	Tableau Public, Google Maps API, QGIS
Data Models	Summarize relationships between variables for analysis or prediction.	Excel (with Solver), RStudio, Google Colab
Presentations	Communicate insights through engaging visuals and narratives.	PowerPoint, Canva, Prezi
Dynamic Data Sheets	Provide real-time, self-updating datasets for ongoing use.	Excel (with dynamic ranges), Google Sheets

PART 5

The Latest Tech and Tools

We have covered a lot of ground so far—defining your questions, developing high-quality tools, analyzing data, and sharing your findings. Now, let's talk about the instruments and technologies that can help you put all of this into action.

From conducting literature reviews and analyzing data to creating visuals and sharing results, the right tools can make our work more efficient, accurate, and impactful. Whether one of us is just starting out or looking to refine our process, this section introduces a variety of tools—both familiar and cutting-edge—to support every stage of your research, evaluation, or data collection journey.
With the table below, we can explore how these instruments can help us save time, streamline workflows, and turn our hard work into meaningful outcomes. The table summarizes a variety of tools that you can review to determine which one or combination of tools might be best to support your data-to-action work. In the rest of this section, we provide some examples, tips, and important notes on using some of these instruments.

Tool Purpose	Tools	Benefits
Meetings	Fathom	This AI meeting tool can record, transcribe, highlight, and summarize your virtual meetings.
Literature Search and Review	Elicit and Claude.ai	These AI tools assist with quickly finding relevant studies, summarizing key findings, and identifying gaps in the literature.
Writing Assistants	Chat GPT	This tool can help generate content ideas, draft outlines, and refine your writing. It is especially useful for brainstorming or overcoming writer's block.
Grammar and Paraphrasing	Grammarly	A powerful tool to check grammar, spelling, and style. It also helps paraphrase text to improve clarity and readability.

Tool Purpose	Tools	Benefits
Citations	Mendeley and Zotero	These tools organize references, generate citations, and create bibliographies automatically.
Illustrations and Graphics	Canva and LucidChart	Canva helps create professional-looking graphics, while LucidChart is excellent for diagrams, flowcharts, and conceptual models. Both are user-friendly, even for beginners.
Transcription	Otter AI	Otter can convert audio recordings from interviews or focus groups into text quickly and accurately.
Quantitative Data Analysis	SPSS, R, and Excel	For analyzing numerical data, SPSS is beginner-friendly, R offers advanced statistical capabilities, and Excel is a versatile tool for data management and basic analysis.
Qualitative Data Analysis	NVivo and Dedoose	Both tools are excellent for coding and analyzing qualitative data. NVivo offers advanced capabilities for thematic analysis, while Dedoose is great for mixed-methods projects.
Transcription and Qualitative Data Analysis	CoLoop and Insight7	Both AI tools provide transcription and analysis of various qualitative data materials. CoLoop offers detailed project set-up and referenced sources, while Insight7 has opportunities for reports and visualizations.

An example using ChatGPT for quantitative data analysis support

You can leverage **ChatGPT**, an artificial intelligence (AI) chatbot that uses natural language processing to generate human-like text and code in response to user prompts. You can use it to analyze your data and generate actionable results. Below is an example workflow with ChatGPT.

1. Prepare Your Data
    - **Clean and Organize the Data in Excel:**
        - Structure your data with clear headers.
            - **Example columns:** *Participant ID*, *Age*, *Gender*, *Ethnicity*, *Program Participation*, *Outcome*, *Date of Enrollment*.
        - Remove any sensitive information

- **Save the File:**
  - Save the data as a .csv or .xlsx file for easy sharing.
    - **Example file name:** Nonprofit_Demographics_Data.csv.
- **Summarize Your Data:**
  - In your message, briefly describe the contents of the file.
    - **Example:** *"This dataset includes demographic information and program participation details for a nonprofit's community outreach program. Columns include Participant ID, Age, Gender, Ethnicity, Program Participation, and Outcome."*

2. Attach the File
   - **Upload the .csv or .xlsx file using the chat interface's file upload feature.**
     - Include a specific request in your prompt:
       - *"I've attached a dataset with demographics and program participation details. Can you analyze this to summarize participant demographics and program outcomes?"*

3. Request Analysis
   - **Specify the type of analysis you need:**
     - **Demographic Overview:**
       - *"Provide a breakdown of participants by gender, age group, and ethnicity."*
       - *"What percentage of participants fall into each age group?"*
       - *"What is the gender distribution across different programs?"*
     - **Program Participation**:
       - *"Which program had the highest participation rate?"*
       - *"How does participation vary by demographic group (e.g., gender or ethnicity)?"*
     - **Outcome Analysis**:
       - *"Summarize outcomes by program and demographic group."*
       - *"What percentage of participants achieved positive outcomes in each program?"*
     - **Trends and Patterns**:
       - *"Identify any patterns in enrollment by age or ethnicity."*
       - *"Are certain demographic groups more likely to participate in specific programs?"*
     - **ChatGPT will generate:**
       - **Summary tables:**
         - **Example:**

Demographic Group | Number of Participants | Percentage of Total

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Female | 120 | 60%
Male | 80 | 40%

- **Insights**:
  - *"The majority of participants (60%) are female, with higher participation in Program A. Participants aged 18–25 make up the largest age group."*
- **Recommendations**:
  - *"Consider tailoring outreach efforts to increase male participation in Program B."*

5. Iterate and Refine

- **Ask follow-up questions to get deeper insights:**
  - *"Break down outcomes for participants aged 18–25 in Program A."*
  - *"Add a comparison of positive outcomes between genders."*

6. Export and Use Results

- **Copy Outputs**:
  - Tables, summaries, and recommendations can be copied directly into your organization's reports or presentations.
- **Request Results in Excel**
  - Once ChatGPT provides the analysis, you can also explicitly request the results to be exported: *"Can you format this analysis as an Excel file and provide a downloadable link?"*
- **Ask for Visualizations**:
  - Request chart recommendations:
    - *"What chart would best display the age distribution of participants?" (Answer: Histogram)*
    - *"Create a breakdown of outcomes by gender using a bar chart."*

Tips for Elicit and Claude.ai

While many of these tools are well-documented, Elicit and Claude.ai are newer tools that benefit from some additional guidance to use effectively. For the other instruments, consider doing an online search for tutorials to learn how to use them efficiently.

Using Elicit

- Ask Specific Questions: Frame queries clearly for focused results. For example, "What challenges do families in urban areas face in accessing fresh produce?"
- Explore Key Findings: Use Elicit to quickly locate trends, methods, or gaps across studies.
- Follow Citations: Dive deeper by reviewing cited works in identified summaries.

Using Claude.ai

- Summarize and Synthesize: Provide detailed prompts to get clear summaries, like "Summarize recent findings on food insecurity in disaster-prone regions."
- Compare and Contrast: Input findings from multiple articles and ask Claude to highlight similarities or differences.
- Iterate Questions: Refine your queries to clarify or expand the information provided.

General Tips for AI Tools Like ChatGPT, Elicit, and Claude.ai

- Be Specific: Provide clear and detailed prompts to help the tool generate more focused and relevant outputs.
- Iterate and Refine: Do not settle for the first answer. Adjust your query to explore different angles or gain deeper insights.
- Check for Biases: AI tools can reflect biases in their training data. Always verify outputs against trusted sources.
- Use as a Starting Point: Treat these tools as helpers to kick-start your process, not as the final source of truth.
- Citation: Using your professional and organizational policies as a starting point, provide a citation of your AI tools as appropriate. A statement such as, "Content was enhanced through

the use of AI and Machine Learning tools," or an in-text or reference list citation might be included in your final work to ensure transparency.

Note on AI Risks and How to Navigate Them

AI tools offer significant benefits, but they also come with risks, such as the potential for bias, inaccuracies, or over-reliance on automation. To mitigate these risks:

- **Do Not Use Identifiable Information:** Avoid inputting sensitive or identifiable personal data into AI tools to protect privacy and confidentiality.
- **Cross-Verify Outputs:** Always validate AI-generated content against trusted sources to ensure accuracy.
- **Be Aware of Bias:** AI tools can reflect biases in their training data. Be critical of their outputs, especially when addressing sensitive topics.
- **Maintain Ethical Standards:** Ensure that AI-generated outputs align with values like fairness, transparency, and accountability. For example, if an AI tool generates insights that may misrepresent or harm a vulnerable group, critically assess and contextualize the output instead of treating it as fact. This ensures that the outputs are used responsibly and do not perpetuate harm.
- **Limit Over-Reliance:** Treat AI as a support tool, not a replacement for critical thinking or domain expertise.

Making the Most of These Tools

Choosing the right tool is just the first step; using it effectively is just as important. Here are some general tips:

1. Start Small: Begin with basic features before exploring advanced capabilities.
2. Invest in Training: Look for online resources, webinars, or tutorials to deepen your knowledge.
3. Integrate Tools into Your Workflow: Combine tools for efficiency, such as Otter for transcription, NVivo for analysis, and Canva for presenting results.
4. Focus on Relevance: Use tools that match your specific project needs, prioritizing what will save time or add value.

By selecting the best tools for your needs and mastering their use, you can enhance the quality, efficiency, and impact of your work.

CONCLUSION

Throughout this guide, we have walked through how to slow down your research, evaluation, and/or data-driven processes—from defining clear questions, choosing and designing the right tools, minimizing bias, analyzing data, sharing your findings, and exploring technologies that can streamline your work. Each part builds on the next, helping you create thoughtful, intentional, and impactful research, evaluation, and/or data-driven projects and products.

At its core, this process is about more than just data collection—it is about transforming information into knowledge, decisions, and actions that benefit your organization, partners, and community. By slowing down, reflecting, and using the strategies and tools outlined here, you can produce meaningful insights that drive real change.

When our firms partner with a client, the final phase of work transitions from planning, learning, and engaging to creating time and space for the client and community to transition into a "supported implementation" space. No matter how successful the prior phases of our partnership were, ultimately the final phase and taking action falls to the client and community but our team actively supports community transformation. What that support looks like for any client or community is nearly impossible to predict and similarly, ingraining ways to slow down the 'scientific method' in your place of work or community will be unique to you as well.

If you would like to learn more, share feedback, or discuss potential collaborations, we'd love to hear from you. See the **About the firms** section to contact us to connect and continue this journey together. For additional guidance, tools, and inspiration, be sure to explore the **Resources and References** section at the end of this document.

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About the firms

1000 Feathers | https://www.1000feathers.com/

We are boldly and exclusively focused on the transformation of organizations, coalitions, and systems across the southern United States. Our entire team brings a collective experience in nonprofit management and leadership, collaborative partnerships, communications, research, and evaluation and has served organizations nationwide, helping them achieve greater impact in communities. Our team is strategically assembled and uniquely positioned to help organizations, coalitions, networks, and systems transform to meet the challenges of the moment. Together we are doubling down on our responsibility to create a new future—one where all communities and the people who live in them have the strength, resiliency, and ability to reach their full potential.

Behavioral Science Research Institute (BSRI) | https://www.bsrinstitute.org/

We are dedicated to empowering organizations, coalitions, and communities through evidence-based research, applied evaluation, and strategic collaboration. Headquartered in Coral Gables, Florida, our team works nationwide, specializing in providing actionable insights to solve critical public health challenges and advance community well-being. Guided by our core values of inclusivity, respect for diversity, and community partnership, we approach our work with a collaborative and community-centric lens. By combining rigorous methods with participatory practices, we meaningfully engage our partners to support equitable and sustainable change, helping communities and organizations maximize their potential and create lasting impact.

RESOURCES AND REFERENCES

- Bhandari, P. (May 2020, Revised March 2023). Sampling bias and how to avoid it. Types & examples. Retrieved from https://www.scribbr.com/research-bias/sampling-bias/
- Boynton, P. M., & Greenhalgh, T. (2004). Hands-on guide to questionnaire research: Selecting, designing, and developing your questionnaire. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC420179/
- Brown, M. (2023). Writing good survey questions: 10 best practices. Retrieved from https://www.nngroup.com/articles/survey-best-practices/

- Brownson, R. C., Colditz, G. A., & Proctor, E, K. (2018). Dissemination and implementation research in health: Translating science to practice. Oxford: https://academic.oup.com/book/26456
- Cain, M., Daniels, K., & Strompolis, M. (2019). Extreme makeover survey edition: 10 tips for designing a "Brick House" survey. Skill building session presented to the South Carolina State Data Team: Columbia, SC.
- Chung, L. (nd). The 7 types of sampling and response bias to avoid in customer surveys. Retrieved from https://delighted.com/blog/avoid-7-types-sampling-response-survey-bias
- Community Toolbox. (nd). Tools to change our world. University of Kansas. Retrieved from https://ctb.ku.edu/en
- Creswell, J. W., & Poth, C. N. (2018). Qualitative inquiry & research design: Choosing among five approaches (Fourth edition.). Thousand Oaks, CA: SAGE Publications, Inc.
- Evergreen, S. D. H. (2020). Effective data visualization: The right chart for the right data. Sage: https://us.sagepub.com/en-us/nam/effective-data-visualization/book265203
- Firth Leonard, K., & Robinson, S. B. (2014). It's all in how you ask: The nuances of survey design. Presentation at the American Evaluation Association: Denver, CO.
- Gaille, L. (January 2020). 20 advantages and disadvantages of survey research. Retrieved from https://vittana.org/20-advantages-and-disadvantages-of-survey-research?utm_source=chatgpt.com
- Harvard University (Program on Survey Research). (2007). Tip sheet on question wording. Retrieved from https://psr.iq.harvard.edu/files/psr/files/PSRQuestionnaireTipSheet_0.pdf
- Jovancic, N. (July 2021). 5 types of bias in research and how to make your surveys bias-free. Retrieved from https://www.leadquizzes.com/blog/types-of-bias-in-research/
- Kloos, B., Hill, J., Thomas, E., Case, A., D., Scott, V. C., & Wandersman, A. (2020). Community psychology: Linking individuals and communities. APA: https://www.apa.org/pubs/books/community-psychology-fourth-edition
- Newcomer, K. E., Hatry, H. P., & Wholey, J. S. (2015). Handbook of practical program evaluation. Wiley: https://onlinelibrary.wiley.com/doi/book/10.1002/9781119171386
- Panorama Education. (nd). Survey design checklist. Retrieved from https://www.panoramaed.com/blog/survey-design-checklist
- Patton, M. Q. (2008). Utilization-focused evaluation (Fourth edition). Thousand Oaks, CA: SAGE Publications, Inc.
- Robinson, S. B., & Firth Leonard, K. (2018). Designing quality survey questions. Sage: https://www.sheilabrobinson.com/designing-quality-survey-questions-the-book/

- Sincero, S. M. (March 2012). Advantages and disadvantages of surveys. Retrieved from https://explorable.com/advantages-and-disadvantages-of-surveys
- SurveyMonkey (nd). Survey 101. Retrieved from https://www.surveymonkey.com/mp/survey-guidelines/
- Thayer-Hart, N., Dykema, J., Elver, K., Schaeffer, N. C., & Stevenson, J. (2010). Survey fundamentals: A guide to designing and implementing surveys. Retrieved from https://osteopathic-medicine.uiw.edu/_docs/getting-started-research/survey-fundamentals.pdf
- University of Pittsburgh (University Center for Teaching & Learning). (nd). Tips for writing good survey questions. Retrieved from https://teaching.pitt.edu/resources/tips-for-writing-good-survey-questions/
- Watson-Thompson, J., Collie-Akers-V., Keene Woods, N., Anderson-Carpenter, K. D., Jones, M. D., & Taylor, E. L. (2015). Participatory approaches for conducting community needs and resource assessments. Sage: https://sk.sagepub.com/books/community-psychology-foundations-for-practice
- Wallerstein, N., Duran, B., Oetzel, J., & Minkler, M. (2018). Community-based participatory research for health: Advancing social and health equity. Wiley: https://www.wiley.com/en-us/Community+Based+Participatory+Research+for+Health:+Advancing+Social+and+Health+Equity,+3rd+Edition-p-9781119258858
- Walston, J., Redford, J., & Bhatt, M. P. (2017). Survey methods in education research: Facilitator's guidebook and workshop resources (Regional Educational Laboratory Midwest). Washington, DC. Retrieved from http://ies.ed.gov/ncee/edlabs