


Which is the step of data collection in action research?

The basic steps in action research are (1) identify a topic or issue to study, (2) collect data related to the chosen topic or issue, (3) **analyze and interpret the collected data**, and (4) carry out action planning, which represents the application of the action research results.



Data collection is the **process of gathering and measuring information on variables of interest**, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and

evaluate outcomes ●

## ESSENTIAL QUESTIONS

As you develop an action plan for your action research project, you will be thinking about the primary task of conducting research, and probably contemplating the data you will collect. It is likely you have asked yourself questions related to the methods you will be using, how you will organize the data collection, and how each piece of data is related within the larger project.

What sort of methodological considerations are necessary to collect data in your educational context?

What methods of data collection will be most effective for your study?



What are the affordances and limitations associated with your data collection methods?

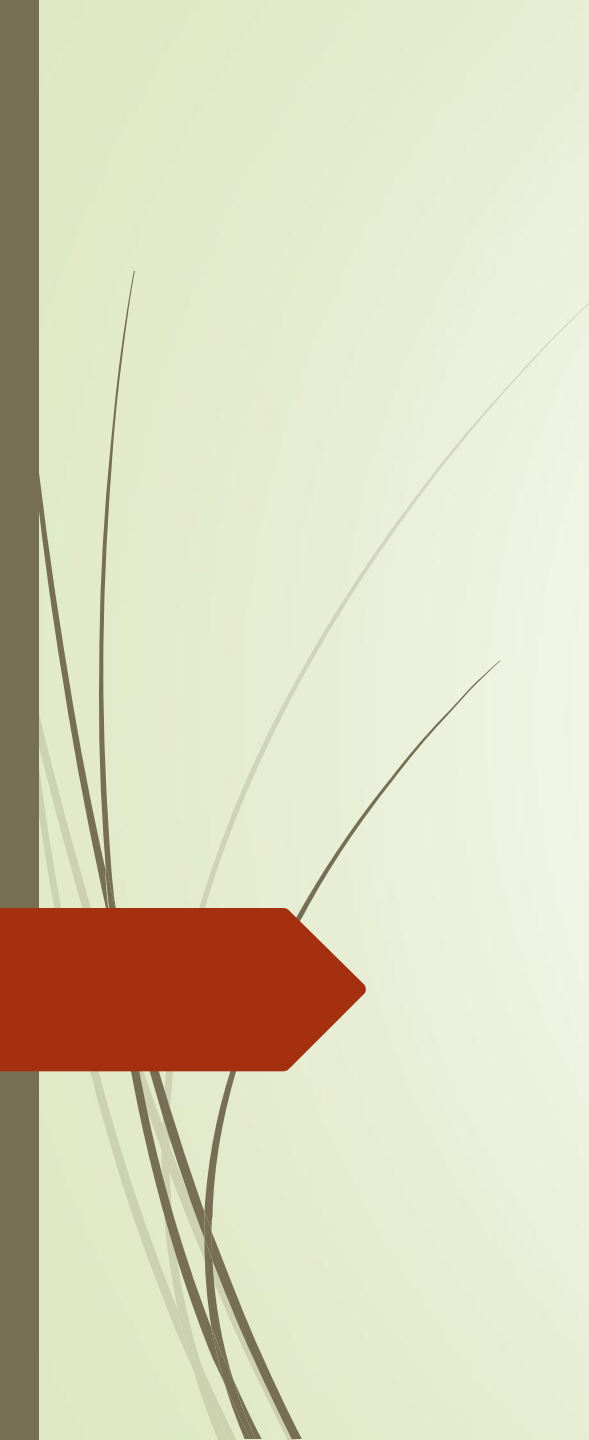
What does it mean to triangulate data, and why is it necessary?

## Thinking about Types of Data

Whether the research design is qualitative, quantitative or mixed-methods, it will determine the methods or ways you use to collect data. Qualitative research designs focus on collecting data that is relational, interpretive, subjective, and inductive; whereas a typical quantitative study, collects data that are deductive, statistical, and objective.

| <b>Typical Characteristics</b> | <b>Qualitative</b>                   | <b>Quantitative</b>                 |
|--------------------------------|--------------------------------------|-------------------------------------|
| <b>Knowledge</b>               | Relational, Interpretive, Subjective | Scientific, Statistical, Objective, |
| <b>Reasoning</b>               | Inductive                            | Deductive                           |
| <b>Data Format</b>             | Language                             | Numbers                             |
| <b>Sample Size</b>             | Small (1-15)                         | Large                               |

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- In contrast, qualitative data is often in the form of language, while quantitative data typically involves numbers. Quantitative researchers require large numbers of participants for validity, while qualitative researchers use a smaller number of participants, and can even use one (Hatch, 2002). In the past, quantitative and qualitative educational researchers rarely interacted, sometimes holding contempt for each other's work; and even published articles in separate journals based on having distinct theoretical orientations in terms of data collection. Overall, there is a greater appreciation for both quantitative and qualitative approaches, with scholars finding distinct value in each approach, yet in many circles the debate continues over which approach is more beneficial for educational research and in educational contexts.



The goal of qualitative data collection is to build a complex and nuanced description of social or human problems from multiple perspectives. The flexibility and ability to use a variety of data collection techniques encompasses a distinct stance on research. Qualitative researchers are able to capture conversations and everyday language, as well as situational attitudes and beliefs. Qualitative data collection is able to be fitted to the study, with the goal of collecting the most authentic data, not necessarily the most objective. To researchers who strictly use quantitative methods, qualitative methods may seem wholly unstructured, eclectic, and idiosyncratic; however, for qualitative researchers these characteristics are advantageous to their purpose. Quantitative research depends upon structure and is bounded to find relationship among variables and units of measurement. Quantitative research helps make sense of large amounts of data. Both quantitative and qualitative research help us address education challenges by better identifying what is happening, with the goal of identifying why it is happening, and how we can address it.



## Flexible Research Design

- A researcher's decisions about data collection and activities involve a personal choice, yet the choice of data sources must be responsive to the proposed project and topic. Logically, researchers will use whatever validated methods help them to address the issue they are researching and will develop a research plan around activities to implement those methods. While a research plan is important to conducting valid research in schools and classrooms, a research plan should also be flexible in design to allow data to emerge and find the best data to address research questions. In this way, a research plan is recommended, but data collection methods are not always known in advance. As you, the educator-researcher, interacts with participants, you may find it necessary to continue the research with additional data sources to better address the question at the center of your research. When educators are researchers and a participant in their study, it is especially important to keep an open mind to the wide range of research methodologies. All-in-all educator-researchers should understand that there are varied and multiple paths to move from research questions to addressing those questions.



## Mixed Methods

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- As mentioned above, mixed methods is the use of both qualitative and quantitative methods. Researchers generally use mixed methods to clarify findings from the initial method of data collection. In mixed-methods research, the educator-researcher has increased flexibility in data collection. Mixed methods studies often result in a combination of precise measurements (e.g., grades, test scores, survey, etc.) along with in-depth qualitative data that provide meaningful detail to those measurements. The key advantage of using mixed methods is that quantitative details enhance qualitative data sources that involve conclusions and use terms such as usually, some, or most which can be substituted with a number or quantity, such as percentages or averages, or the mean, the median, and/or the mode. One challenge to educator-researchers is that mixed methods require more time and resources to complete the study, and more familiarity about both qualitative and quantitative data collection methods.



# Participant Data

- Who are the subjects or participants for the study?
- What data is vital evidence for this study?
- Where will the data be collected?
- When will the data be collected?
- How will the data be collected?
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- As an educator, your possible participants selection pool is narrower than most researchers encounter – however, it is important to be clear about their role in the data design and collection. A study can involve one participant or multiple participants, and participants often serve as the primary source of data in the research process. Most studies by educator-researchers utilize purposeful sampling, or in other words, they select participants who will be able to provide the most relevant information to the study. Therefore, the study design relies upon the participants and the information they can provide. The following is a description of some data collection methods, which include: surveys or questionnaires, individual or group interviews, observations, field notes or diaries, narratives, documents, and elicitation.



## **Interviews and Focus Groups**

Interviews are frequently used by researchers because they often produce some of the most worthwhile data. Interviews allow researchers to obtain candid verbal perspectives through structured or semi-structured questioning. Interview questions, either structured or semi-structured, are related to the research question or research activities to gauge the participants' thoughts, feelings, motivations, and reflections. Some research relies on interviewing as the primary data source, but most often interviews are used to strengthen and support other data sources. Interviews can be time consuming, but interviews are worthwhile in that you can gather richer and more revealing information than other methods that could be utilized (Koshy, 2010). Lincoln and Guba (1985) identified five outcomes of interviewing:



## Surveys



Surveys, or questionnaires, are a research instrument frequently used to receive data about participants' feelings, beliefs, and attitudes in regard to the research topic or activities. Surveys are often used for large sample sizes with the intent of generalizing from a sample population to a larger population. Surveys are used with any number of participants and can be administered at different times during the study, such as pre-activity and post-activity, with the same participants to determine if changes have occurred over the course of the activity time, or simply change over time. Researchers like surveys and questionnaires as an instrument because they can be distributed and collected easily – especially with all of the recent online application possibilities (e.g., Google, Facebook, etc.). Surveys come in several forms, closed-ended, open-ended, or a mix of the two. Closed-ended surveys are typically multiple-choice questions or scales (e.g. 1-5, most likely–least likely) that allow participants to rate or select a response for each question. These responses can easily be tabulated into meaningful number representations, like percentages. For example, Likert scales are often used with a five-point range, with options such as strongly agree, agree, neutral, disagree, and strongly disagree. Open-ended surveys consist of prompts for participants to add their own perspectives in short answer or limited word responses. Open-ended surveys are not always as easy to tabulate, but can provide more detail and description.



## Observations

- One of the simplest, and most natural, forms of data collection is to engage in formal observation. Observing humans in a setting provides us contextual understanding of the complexity of human behavior and interrelationships among groups in that setting. If a researcher wants to examine the ways teachers approach a particular area of pedagogical practice, then observation would be a viable data collection tool. Formal observations are truly unique and allow the researcher to collect data that cannot be obtained through other data sources. Ethnography is a qualitative research design that provides a descriptive account based on researchers' observations and explorations to examine the social dynamics present in cultures and social systems – which includes classrooms and schools. Taken from anthropology, the ethnographer uses observations and detailed note taking, along with other forms of mapping or making sense of the context and relationships within. For Creswell (2007), several guidelines provide structure to an observation:

### Structuring Observations

- Identify what to observe
- Determine the role you will assume — observer or participant
- Design observational protocol for recording notes
- Record information such as physical situation, particular events and activities
- Thank participants and inform them of the use of and their accessibility to the data

## Field Diaries and Notes

Utilizing a field diary, or keeping field notes, can be a very effective and practical data collection method. In purpose, a field diary or notes keep a record of what happens during the research activities. It can be useful in tracking how and why your ideas and the research process evolved. Many educators keep daily notes about their classes, and in many ways, this is a more focused and narrower version of documenting the daily happenings of a class. A field diary or notes can also serve as an account of your reflections and commentary on your study, and can be a starting place for your data analysis and interpretations. A field diary or notes are typically valuable when researchers begin to write about their project because it allows them to draw upon their authentic voice. The reflective process that represents a diary can also serve as an additional layer of professional learning for researchers. The format and length of a field diary or notes will vary depending on the researching and the topic; however, the ultimate goal should be to facilitate data collection and analysis.