Lecture Notes

# Chapter 8: Methods of Data Collection in Quantitative, Qualitative, and Mixed Research

## Learning Objectives

* 1. List the six major methods of data collection.
  2. Explain the difference between method of data collection and research method.
  3. Define and explain the characteristics of each of the six methods of data collection.
  4. Explain the different modes of administration of the methods of data collection.
  5. Explain the concept of standardization.
  6. Explain the key characteristics of the four different types of interviews.
  7. Describe the four roles the researcher can take in qualitative interviewing.
  8. List at least five commonly used interviewing probes.
  9. Explain how the fundamental principle of mixed research can be applied to methods of data collection and provide an example.
  10. State the two “cardinal rules” of educational research mentioned in this chapter.

## Chapter Summary

## The term “method of data collection” simply refers to how the researcher obtains the empirical data to be used to answer his or her research questions. The focus in this chapter is on methods of data collection, not methods of research (which are covered in Part IV of the book).

## Annotated Chapter Outline

1. Introduction
   1. The last chapter focused on standardized measurement and assessment. In this chapter, students will use what they learned in Chapter 7 to learn how to collect data for research.
   2. This chapter discusses creating tests, questionnaires, and interviews. Additionally, students will learn how to conduct focus groups and observations. Finally, constructed, secondary, and existing data are discussed.
2. Mixing Methods of Data Collection: High quality research comes from mixing methods, procedures, and other paradigm characteristics.
   1. Important definitions
      1. **Research method:** overall research design and strategy
      2. **Method of data collection:** technique for physically obtaining data to be analyzed in a research study.
      3. **Fundamental principle of mixed research:** advises researchers to thoughtfully and strategically mix or combine qualitative and quantitative research methods, approaches, procedures, concepts, and other paradigm characteristics in a way that produces an overall design with multiple (divergent and convergent) and complementary (broadly viewed) strengths and complementary (broadly viewed) strengths and nonoverlapping weaknesses
      4. **Intermethod mixing:** Use of more than one method of data collection in a research study
      5. **Intramethod mixing:** Use of a single method of data collection to obtain a mixture of qualitative and quantitative data
   2. Two important rules of educational research
      1. Provide multiple sources of evidence
      2. Rule out alternative explanations
      3. Discussion Question: Why would a researcher want to use multiple research methods and sources of evidence?
3. Tests: commonly used in quantitative research to measure different characteristics of participants
   1. Many tests are available for use
      1. Sometimes have to construct own
      2. It is possible to construct a qualitative or mixed version of a test.
      3. Discussion Question: What tests can students think of that might be useful in research they are interested in?
   2. Technology and Tests
      1. Some tests must be given individually but others can be given to groups of participants.
      2. Computers can deliver tests to large numbers of participants at the same time.
      3. Advantages: east of administration, ability to program complex sequences of questions, lack of researcher effects
      4. Weaknesses: may not know who is participating and what other activities they may be doing which impacts results.
4. **Questionnaires**: A self-report data-collection instrument that each research participant completes as part of a research study. The next chapter will discuss questionnaires in depth.
   1. Technology and Questionnaires
      1. Survey research is often based on questionnaires that are the survey instruments.
      2. Often the questionnaires are available online because of many advantages: Google Forms can be used (see Figure 8.1)
      3. Also used in laboratory research
      4. Can also be completed in person or mailed in by participants
      5. Figure 8.2 shows relative strengths and limitations of mail, telephone, and Internet questionnaires.
5. Interviews
   1. **Interview:** a data collection method in which an interviewer asks an interviewee questions
      1. **Interviewer:** the person asking the questions in the interview
      2. **Interviewee:** the person being asked questions
      3. Need to establish rapport, interview should be friendly, but interviewer should be impartial. See Table 8.2 for tips to conducting interviews.
      4. **In-person interview:** an interview conducted face-to-face
      5. **Telephone interview:** an interview conducted over the phone
      6. **Probe**: prompt to obtain response clarity or additional information (see Table 8.1)
      7. Interviews can be quantitative and qualitative: see Table 8.3
      8. Discussion Question: Ask students whether they have ever been interviewed. Have them reflect upon the type of interview they participated in.
   2. Technology and Interviews
      1. Interviews are often conducted over the phone with a Computer Assisted Telephone Interview (CATI) system which is programmable software where researcher enters the interview protocol with skip sequences.
      2. Interviewer reads questions and enters answers from participants.
      3. GoToMeeting is helpful for Internet interviews.
   3. Quantitative Interviews:
      1. Carefully read words in the **interview protocol** (data collection instrument in an interview): looks like a questionnaire
      2. Are standardized (**standardization**: presenting the same stimulus to all participants).
      3. Use closed-ended questions.
      4. Exhibit 9.1 has an example of a telephone interview protocol. Note that it looks very much like a questionnaire! The key difference between an interview protocol and a questionnaire is that the interview protocol is read by the interviewer who also records the answers (probably everyone has participated in telephone surveys before they were interviewed).
   4. Qualitative Interviews: open-ended questions that provide qualitative data.
      1. Also known as depth interviews because they provide in-depth information.
      2. Interviewer should listen carefully and have prompts or probes to get more clarity or depth if needed.
      3. **Informal conversational interviews:** spontaneous, loosely structured interview
      4. **Interview guide approach:** specific topics and/or open-ended questions are asked in any order
      5. **Standardized open-ended interview:** a set of open-ended questions are asked in a specific order and exactly as worded.
      6. Discussion Question: Compare and contrast the different types of qualitative interviews.
6. Focus Groups: a moderator leads a discussion with a small group of people
   1. Focus groups
      1. Homogeneous group (of 6–12 people) focused on the discussion of a research topic or issue.
      2. Focus group sessions generally last between 1 and 3 hours, and they are recorded using audio and/or videotapes.
      3. Focus groups are useful for exploring ideas and obtaining in-depth information about how people think about an issue.
      4. Used for multiple purposes: background information on a topic, generating research hypotheses for future research, stimulating new ideas and creative concepts, diagnosing the potential for problems with something new, generating impressions, learning how respondents talk about a phenomenon of interest, interpreting previous obtained quantitative results. (Stewart, Shamdasani, & Rock, 2009).
      5. Group moderator or group facilitator is the person leading the focus group discussion, needs to cover all topics and open-ended questions in the focus group protocol that looks like a relatively unstructured interview guide.
      6. Discussion Question: How might the questions used in a focus group differ with the purpose of the specific focus group?
   2. Technology and Focus Groups
      1. Can be conducted over the Internet
      2. Advantages of Internet focus groups: members are widely dispersed across a large geographic area, rapport can be developed, participants can respond from computer in familiar spaces.
      3. Discussion Question: Summarize the benefits of focus groups conducted over the Internet.
7. **Observation**: watching the behavioral patterns of people
   1. Observation
      1. It is important to collect observational data (in addition to attitudinal or self-report data) because what people say is not always what they do
      2. Strength: actual behavior not preferences or intended behavior
      3. Weaknesses: takes more time than self-report, costs more to conduct, cannot determine why people act the way they do, and people act differently when they know they are being observed.
      4. Conducted in two environments
      5. **Laboratory observation:** observation done in the lab or other setting set up by the researcher.
      6. **Naturalistic observation:** observation done in real-world settings
      7. **Discussion Question:** Compare and contrast naturalistic and laboratory observation
   2. **Quantitative** **Observation**: standardized and structured observation
      1. Standardization of: who is observed, what is observed, when the observations take place, where the observations take place, how the observations are to be done.
      2. Observers need to be trained
      3. May involve observational sampling such as **time-interval sampling** (observing during specific time intervals) or **event sampling** (observing during and directly after a specific event has occurred.
      4. Result in quantitative data such as counts or frequencies
      5. Different events may be observed: actual behavior, nonverbal behavior, spatial behavior, extralinguistic behavior, linguistic behavior.
      6. Use checklists or other data collection instruments, typically are detailed, closed ended.
      7. Discussion Question: Have students describe the differences between time-interval sampling and event sampling in terms of their definitions and when each is used.
   3. **Qualitative Observation:** observing all potentially relevant phenomena
      1. Typically done for exploratory purposes in natural settings
      2. Observer records what he or she thinks are important in field notes (notes taken by the observer).
      3. Observers’ role varies along a continuum from complete participant to complete observer.
      4. **Complete participant:** researcher who becomes a member of the group being studied and does not tell members they are being studied
      5. **Participant-as-observer**: Researcher who spends extended time with the group as an insider and tells members they are being studied.
      6. **Observer-as-participant**: Researcher who spends a limited amount of time observing group members and tells members they are being studied.
      7. **Complete observer:** Researcher who observes as an outsider and does not tell people they are being observed.
      8. **Reactivity** (changes that occur in people because they know they are being observed) is minimal with the complete observer model.
      9. Observation provides us with information about **frontstage behavior** (what people want or allow us to see) rather than **backstage behavior** (what people say and do only with their closest friends)

10.See Table 8.4 and Exhibit 8.2

11.Discussion Question: Compare and contrast the continuum of qualitative observation.

* 1. Visual Data
     1. **Visual data collection:** process of collecting data using visual sources such as photographs, drawings, graphics, paintings, film, and video
     2. **Photo interviewing:** process of eliciting data from a person using photographic or video imagery when conducting interviews.
     3. Discussion Question: Why are visual data important for researchers to consider?

1. Constructed, Secondary, and Existing Data
   1. **Constructed data:** objects or things that are constructed by research participants during a research study
      1. Drawings, paintings, and so on
      2. Used in quantitative, qualitative, and mixed research
   2. **Secondary and existing data:** existing data originally collected or left behind at an earlier time by a different person for a different purpose.
      1. May be only data source or combined with other data sources
      2. A major type of secondary data is documents that are frequently used by qualitative researchers.
         1. **Personal documents:** anything written, photographed, or recorded for private purposes.
         2. **Official documents:** anything written, photographed, or recorded by an organization
      3. **Physical data:** any material thing created or left by humans who might provide information about a phenomenon; popular with quantitative, qualitative, and mixed researchers
      4. **Archived research data:** data originally used for research purposes and then stored; at this time, predominantly quantitative data
      5. Discussion Question: Compare and contrast the different types of secondary and existing data.