

Research Designs and Methods

Researchers use many different designs and methods to study human development. The three most popular **designs** are:

- **Cross sectional:** a number of different-age individuals with the same trait or characteristic of interest are studied at a single time.
- **Longitudinal:** the same individuals are studied repeatedly over a specified period of time.
- **Cross-sequential:** individuals in a cross-sectional sample are tested more than once over a specified period of time.

Seven popular life-span research **methods** include the:

- case study
- survey
- observational
- correlational
- experimental
- cross-cultural
- participant observation methods,

Case-study research In **case-study research**, an investigator studies an individual who has a rare or unusual condition or who has responded favorably to a new treatment. Case studies are typically clinical in scope. The investigator—often a physician, psychologist, social worker, counselor, or educator—interviews the subject, obtains background records, and administers questionnaires to acquire quantifiable data on the subject. A comprehensive case study can last months or years. Throughout the duration of the case study, the researcher documents the condition, treatment, and effects in relation to each patient and summarizes all of this information in individual **case reports**.

Survey research involves interviewing or administering questionnaires or written surveys to large numbers of people. The investigator analyzes the data obtained from surveys to learn about similarities, differences, and trends, and then makes predictions about the population being studied. **Advantages** of surveys research

include the great amount of information the researcher can obtain from the large number of respondents, the convenience for respondents of taking a written survey, and the low cost of acquiring and processing data. Mail-in surveys have the added advantage of ensuring anonymity and thus prompting respondents to answer questions truthfully.

Disadvantages of survey research include volunteer bias, interviewer bias, and distortion.

Volunteer bias occurs when a sample of volunteers is not representative of the general population. Subjects who are willing to talk about certain topics may answer surveys differently than those who are not. **Interviewer bias** occurs when an

interviewer's expectations or insignificant gestures (such as frowning or smiling) inadvertently influence a subject's responses one way or the other. **Distortion** occurs when a subject does not respond honestly to questions.

Observational research

Because distortion can be a serious limitation of surveys research, scientists may choose to observe subjects' behavior directly through **observational research**. Observational research takes place in either a laboratory (**laboratory observation**) or a natural setting (**naturalistic observation**). In either research method, observers record participants' behavior within an environment. Observational research reduces the possibility of subjects giving misleading accounts of their experiences, not taking the study seriously, being unable to remember details, or feeling too embarrassed to disclose everything that happened.

Observational research has limitations, however. Volunteer bias is common, because volunteers may not be representative of the general public. Individuals who agree to be observed and monitored may function differently than respondents who do not want to be observed and monitored. Individuals may also function differently in a laboratory setting than respondents who are observed in more-natural settings.

Correlational research

A **correlation** is a relationship between two **variables** (factors that change). Variables may include characteristics, attitudes, behaviors, or events. The goal of correlational research is to determine whether or not a relationship exists between two variables, and if a relationship does exist, the number of commonalities in that relationship. A researcher may use case-study

methods, surveys, interviews, and observational research to discover correlations. Correlations are either positive (to +1.0), negative (to -1.0), or nonexistent (0.0). In a **positive correlation**, the values of the variables increase or decrease (co-vary) together. In a **negative correlation**, one variable increases as the other variable decreases. In a **nonexistent correlation**, there is no relationship between variables.

Although correlation is commonly confused with causation, correlational data DOESNT indicate a cause-and-effect relationship. When a correlation is present, changes in the value of one variable reflect changes in the value of the other. The correlation does not imply that one variable causes the other variable, only that both variables are somehow related. To study the effects that variables have on each other, an investigator must conduct an experiment.

Experimental research

Experimental research is concerned with *how* and *why* something happens. The goal of experimental research is to test the effect that an **independent variable**, which the scientist manipulates, has on a **dependent variable**, which the scientist observes. In other words, experimental research leads to conclusions regarding causation.

A number of factors can affect the outcome of any type of experimental research. For instance, investigators face the challenge of finding samples that are random and representative of the population being studied. Additionally, researchers must guard against **experimenter bias**, in which their expectations about what should or should