

2

A CHILD'S WORLD: HOW WE DISCOVER IT

In This Chapter of Your Instructor's Manual:

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1. GUIDEPOSTS FOR STUDY

- 2.1** ***What purposes do theories serve, and what are two basic issues on which developmental theorists differ?***
- 2.2** ***What are five theoretical perspectives on child development, and what are some theories that are representatives of each?***
- 2.3** ***How do developmental scientists study children, and what are the advantages and disadvantages of each research method?***
- 2.4** ***What ethical problems may arise in research on children?***

2. TOTAL TEACHING PACKAGE OUTLINE

Chapter 2: A Child's World: How We Discover It

Guidepost for Study 2.1 What purposes do theories serve, and what are two basic issues on which developmental theorists differ?	Lecture Topic 2.1, 2.3 Knowledge Construction Activity 2.1
Guidepost for Study 2.2 What are five theoretical perspectives on child development, and what are some theories that are representative of each?	Discussion Topic 2.1 Knowledge Construction Activity 2.8, 2.9
Guidepost for Study 2.3 How do developmental scientists study children, and what are the advantages and disadvantages of each research method?	Lecture Topic 2.2 Discussion Topic 2.2, 2.3, 2.4 Knowledge Construction Activity 2.2, 2.4, 2.5, 2.6, 2.7
Guidepost for Study 2.4 What ethical problems may arise in research on children?	Independent Study 2.1 Discussion Topic 2.2 Choosing Sides 2.1 Knowledge Construction Activity 2.3
Applied Activities: Students in Nursing, Education, and other applied fields may particularly enjoy these activities.	Knowledge Construction Activity 2.4, 2.7 Applied Activity 2.1, 2.2

Please check out the Online Learning Center located at <http://www.mhhe.com/papaliaacw13> for further information on these and other topics, as well as a variety of other teaching resources. There you can access downloadable PowerPoints tailored to each chapter of the text. This site also contains useful teaching notes as well as images and tables from the text itself.

3. EXPANDED OUTLINE

I. Basic Theoretical Issues

- **Theory:** Coherent set of logically related concepts that seeks to organize, explain, and predict data.
 - **Hypotheses:** Possible explanations for phenomena, used to predict the outcome of research.

A. Issue 1: Is Development Active or Reactive?

- *Tabula Rasa:* “Blank slate” on which society writes.
- **Mechanistic Model:** Views human development as a series of predictable responses to stimuli.
- **Organismic Model:** Views human development as internally initiated by an active organism, and as occurring in a sequence of qualitatively different stages.

B. Issue 2: Is Development Continuous or Discontinuous?

- *Quantitative change:* Change in number or amount, such as in height, weight, or size of vocabulary.
- *Qualitative change:* Change in kind, structure, or organization, such as the change from nonverbal to verbal communication.

II. Theoretical Perspectives

A. Perspective 1: Psychoanalytic

- **Psychoanalytic Perspective:** View of human development as being shaped by unconscious forces.
 1. **Sigmund Freud: Psychosexual Development**
 - **Psychosexual development:** In Freudian theory, an unvarying sequence of stages of personality development during infancy, childhood, and adolescence, in which gratification shifts from the mouth to the anus and then to the genitals.
 - *Id:* Part of the personality that governs newborns, operating on the pleasure principle.
 - *Pleasure principle:* The drive to seek immediate satisfaction of needs and desires.
 - *Superego:* Part of the personality containing the conscience, incorporating socially approved behavior into the child’s own value system.
 - *Ego:* Part of the personality that represents reason, operating on the reality principle.
 - *Reality principle:* Finding realistic ways to gratify the id.
 - *Fixation:* In psychoanalysis, an arrest in development that can show up in adult personality.

- *Oral stage*: Stage in psychosexual development in which feeding is the main source of sensual pleasure.
- *Anal stage*: Stage in psychosexual development in which the chief source of pleasure is moving the bowels.
- *Phallic stage*: Stage in psychosexual development in which boys develop sexual attachment to their mothers and girls to their fathers, with aggressive urges toward the same-sex parent.
- *Oedipus complex*: Part of the phallic stage in which boys develop a sexual desire for their mothers and aggressive urges toward their fathers.
- *Penis envy*: Part of the phallic stage in which girls wish to possess a penis.
- *Latency stage*: Stage in psychosexual development which is a period of relative emotional calm and intellectual and social exploration.
- *Genital stage*: Stage in psychosexual development which lasts throughout adulthood, in which repressed sexual urges resurface to flow in socially approved channels.

2. Erik Erikson: Psychosocial Development

- **Psychosocial development**: In Erikson's eight-stage theory, the socially and culturally influenced process of development of the ego, or self.
- *Basic trust versus mistrust*: The critical theme of Erikson's infancy stage.

B. Perspective 2: Learning

- **Learning perspective**: View of human development that holds that changes in behavior result from experience.

1. Learning Theory 1: Behaviorism

- **Behaviorism**: Learning theory that emphasizes the predictable role of environment in causing observable behavior.
 - *Associative Learning*: Behavioral research which focuses on a mental link that is formed between two events.
 - a. *Classical Conditioning*
 - **Classical conditioning** (Pavlov, Watson): Learning based on associating a stimulus that does not ordinarily elicit a particular response with another stimulus that ordinarily does elicit the response.
 - b. *Operant Conditioning*
 - **Operant conditioning** (Skinner): Learning based on association of behavior with its consequences.
 - **Reinforcement**: In operant conditioning, a process that increases the likelihood that a behavior will be repeated.
 - **Punishment**: In operant conditioning, a process that decreases the likelihood that a behavior will be repeated.
 - *Extinguished*: The return to baseline when a behavior is no longer reinforced.
 - **Behavior Modification**: A form of operant conditioning used to eliminate undesirable behavior or instill positive behaviors.

2. *Learning Theory 2: Social Learning (Social Cognitive) Theory*

- **Social Learning Theory:** (Bandura) Behaviors are learned by observing and imitating models. Also called *social cognitive theory*.
- **Reciprocal determination:** The impetus for development is bidirectional.
- **Observational learning:** Learning through watching the behavior of others. Children actively choose *models* to imitate.
- **Social Cognitive Theory:** People observe models, learn “chunks” of behavior, and mentally put these chunks together into complex new behavior patterns.
- **Self-efficacy:** Sense of one’s capability to master challenges and achieve goals.

C. Perspective 3: Cognitive

- **Cognitive Perspective:** Focuses on thought processes and the behaviors that reflect those processes.

1. *Jean Piaget’s Cognitive-Stage Theory*

- Cognitive-Stage Theory: Piaget’s theory that children’s cognitive development advances in a series of four stages involving qualitatively distinct types of mental operations.
- Piaget’s *clinical method* combined observation with flexible questioning.
- **Organization:** Piaget’s term for the creation of categories or systems of knowledge.
- **Schemes:** Organized patterns of thought and behavior used in particular situations.
- **Adaptation:** Adjustment to new information in light of what they already know.
- **Assimilation:** Incorporating new information into an existing cognitive structure.
- **Accommodation:** Changes in a cognitive structure to include new information.
- **Equilibration:** Tendency to seek a stable balance among cognitive elements.

2. *Lev Vygotsky’s Sociocultural Theory*

- **Sociocultural theory:** Theory of how contextual factors affect children’s development. Vygotsky saw cognitive growth as a collaborative process; children learn through social interaction.
- **Zone of proximal development (ZPD):** The difference between what a child can do alone and what the child can do with help.
- **Scaffolding:** Temporary support to help a child with a task until the child can do the task alone.

3. *The Information-Processing Approach*

- Approach to the study of cognitive development by observing and analyzing the mental processes involved in perceiving and handling information.
- *Computational models:* Flow charts which analyze the specific steps children go through in gathering, storing, retrieving, and using information.

4. *Neo-Piagetian Theories*

- Integrates Piaget’s theory with information-processing approach.

D. Perspective 4: Contextual

- **Contextual Perspective:** View that development can only be understood in its social context.
- **Bioecological theory:** (Bronfenbrenner) Five levels of environmental influence, ranging from very intimate to very broad.
 - **Microsystem:** Setting in which a child interacts with others on an everyday, face-to-face basis.
 - **Mesosystem:** Linkages of two or more microsystems.
 - **Exosystem:** Linkages between two or more settings, one of which does not contain the child.
 - **Macrosystem:** Overall cultural patterns.
 - **Chronosystem:** Effects of time on other developmental systems.

E. Perspective 5: Evolutionary/Sociobiological

- **Evolutionary/sociobiological perspective:** Focuses on evolutionary and biological bases of behavior.
- *Evolved mechanisms:* Behaviors that developed to solve problems in adapting to an earlier environment.
- **Ethology:** Study of the distinctive adaptive behaviors of species of animals that have evolved to increase survival of the species.
- **Evolutionary Psychology:** Applies Darwin's principals of natural selection and survival of the fittest to human psychology.
- *Evolutionary Developmental Psychology:* Identifies adaptive behaviors at different ages.

F. A Shifting Balance

- *Bidirectional:* A view that people change their world even as it changes them.
- **The Adaptive Value of Immaturity:** Several potential adaptive values of immaturity and prolonged dependence on parents are listed in the text box on page 40.

III. Research Methods

A. Quantitative and Qualitative Research

- **Quantitative research:** To objectively measure data.
- **Scientific method:** System of established principles and processes of scientific inquiry.
 - *Identifying a problem*
 - *Formulating hypotheses*
 - *Collecting data*
 - *Analyzing data*

- *Forming tentative conclusions*
- *Disseminating findings*
- **Qualitative research:** The interpretation of non-numerical data.

B. Sampling

- *Population:* Group to which you want to apply findings.
- **Sample:** Group of participants chosen to represent the entire population under study.
- *Generalize:* Applying research results to the population as a whole.
- **Random selection:** Sampling method in which each person in the population has an equal and independent chance of being chosen.

C. Forms of Data Collection

1. *Self-Reports: Diaries, Visual Techniques, Interviews, and Questionnaires*

- *Diary:* A log or record of activities.
- *Parental self-reports:* A log or record of activities kept by the parents of young children, concerning the children's activities.
- *Visual representation techniques:* Involves asking participants to draw or paint or to provide maps or graphs that illuminate their experience.
- *Interview:* Method in which researchers, either face-to-face or on the telephone, ask questions about attitudes, opinions, or behavior.
- *Structured interview:* Interview in which each participant is asked the same set of questions.
- *Open-ended interview:* Interview in which the interviewer can vary the topics and order of questions and can ask follow-up questions based on the responses.
- *Questionnaire:* Printed questions that participants fill out and return.

2. *Naturalistic and Laboratory Observation*

- **Naturalistic observation:** Behavior is studied in natural settings without intervention or manipulation.
- **Laboratory observation:** All participants are observed in the same situation, under the same controlled conditions.
- *Observer bias:* The researcher's tendency to interpret data to fit expectations, or to emphasize some aspects and minimize others.
- *Replicable:* The repeatability of results by other researchers.

3. *Behavioral and Performance Measures*

- *Valid:* A test that measures the abilities it claims to measure is said to be valid.
- *Reliable:* A test that provides consistent results from one testing to another is reliable.
- *Standardized:* A test that is given and scored by the same methods and criteria for all test takers is said to be standardized.
- **Operational definitions:** Definitions stated in terms of the operations or procedures used to produce or measure a phenomenon.

- **Cognitive neuroscience:** Study of links between neural processes and cognitive abilities.

D. Evaluating Quantitative and Qualitative Research

E. Basic Research Designs

1. Case Studies

- **Case study:** Study focusing on a single case or individual.

2. Ethnographic Studies

- **Ethnographic study:** Seeks to describe the pattern of relationships, customs, beliefs, technology, arts, and traditions that make up a way of life in a society.
- **Participant observation:** Research method in which the observer lives with the people or participates in the activity being observed.

3. Correlational Studies

- **Correlational study:** Research design intended to discover whether a statistical relationship exists between variables.
- **Correlation:** A statistical relationship between two or more variables.
- **Variables:** Phenomena that change or vary among people or can be varied for purposes of research.
- **Positive correlation:** Variables that are related increase or decrease together.
- **Negative correlation:** Variables have an inverse relationship; as one increases, the other decreases.
- **Purposes of Cross-Cultural Research:** A discussion of the utility of cross-cultural research on establishing universal developmental norms, as well as different developmental paths based on culture, can be found in the text box on page 48.

4. Experiments

- **Experiment:** Rigorously controlled, replicable procedure in which the researcher manipulates variables to assess the effect of one on the other.
- **Replicate:** Repeating an experiment in exactly the same way with different participants to verify the results and conclusions.

a. Groups and Variables

- **Experimental group:** In an experiment, the group receiving the treatment under study.
- **Treatment:** the phenomenon the researcher wants to study.
- **Control group:** In an experiment, a group of people, similar to those in the experimental group, who do not receive the treatment under study.
- **Treatment group:** In an experiment, a group that receives one of the treatments under study.
- **Double-blind:** An experimental procedure in which neither participants nor experimenters know who is receiving the treatment and who is instead receiving an inert placebo.

- **Independent variable:** In an experiment, the condition over which the experimenter has direct control.
- **Dependent variable:** In an experiment, the condition that may or may not change as a result of changes in the independent variable.

b. Random Assignment

- **Random assignment:** Assigning the participants in an experiment to groups in such a way that each person has an equal chance of being placed in any group.
- **Confound:** Contamination of an experiment by unintended differences between the groups.

c. Laboratory, Field, and Natural Experiments

- **Laboratory experiment:** Experiment in which the participants are brought to a laboratory where they experience conditions manipulated by the experimenter.
- **Field experiment:** A controlled study conducted in an everyday setting, such as home or school.
- **Natural experiment:** Study comparing people who have been accidentally “assigned” to separate groups by circumstances of life.

D. Developmental Research Designs

1. Cross-Sectional, Longitudinal, and Sequential Designs

- **Cross-sectional study:** Study design in which people of different ages are assessed on one occasion.
- **Longitudinal study:** Study designed to assess changes in a sample over time.
- **Sequential study:** Study design that combines cross-sectional and longitudinal techniques.

E. Collaborative Research

- **Meta-analysis:** A statistical analysis of the findings of multiple studies.

IV. Ethics of Research

- **Beneficence:** Obligation to maximize potential benefits to participants and minimize potential harm.
- **Respect:** Acknowledgement for participants’ autonomy and protection of those who are unable to exercise their own judgment.
- **Justice:** Inclusion of diverse groups while being sensitive to any special impact the research situation may have on them. Considering children’s developmental needs and rights of participants.

A. Right to Informed Consent

B. Avoidance of Deception

C. Right to Self-Esteem

D. Right to Privacy and Confidentiality

4. EXPANDED OUTLINE (TRANSPARENCY-READY)

I. Basic Theoretical Issues

A. Theory

B. Hypothesis: “educated guess”

C. Issues

1. Active or reactive?

a. Mechanistic: passive and predictable responses to environmental input

b. Organismic: individual, initiated by organism

2. Continuous or discontinuous?

a. Quantitative change: frequency in which a response is made

b. Qualitative change: distinct stages, change in kind of response

III. Theoretical Perspectives

A. Psychoanalytic

1. Psychosexual theory (Freud)

a. Stages of development: oral, anal, phallic, latency, genital

b. Parts of personality: id, ego, and superego

2. Psychosocial theory (Erikson)

a. Eight stages of development, each involving a crisis and occurring over the life span

B. Learning

1. Behaviorism

a. Classical conditioning (Pavlov, Watson)

b. Operant conditioning (Skinner)

i. Punishment

- 2. Social learning theory (Bandura)
 - a. Social cognitive
 - b. Observational learning
 - C. Cognitive
 - 1. Cognitive-stage theory (Piaget)
 - a. Organization
 - b. Schemes
 - c. Adaptation
 - i. Assimilation
 - ii. Accommodation
 - d. Equilibration
 - 2. Sociocultural theory (Vygotsky)
 - a. Zone of proximal development
 - b. Scaffolding
 - 3. Information-processing
 - a. Computer-based models
 - 4. Neo-Piagetian theory
 - D. Contextual
 - 1. Bioecological (Bronfenbrenner)
 - a. Microsystem, mesosystem, exosystem, macrosystem, chronosystem
 - E. Evolutionary/Sociobiological
 - 1. Ethological perspective (Lorenz/Bowlby)
 - 2. Evolutionary psychology (Darwin)
 - 3. Evolutionary developmental psychology
 - F. A shifting balance
- IV. Research Methods
- A. Quantitative and qualitative research: Scientific method
 - B. Sampling
 - 1. Population

- 2. Sample
- 3. Random selection
- C. Forms of data collection
 - 1. Self-reports
 - a. Diaries
 - b. Visual techniques
 - c. Interviews
 - d. Questionnaires
 - 2. Naturalistic and laboratory observations
 - 3. Behavioral and performance measures
 - a. Tests
 - i. Validity
 - ii. Reliability
 - iii. Standardization
 - iv. Operational definitions
 - v. Cognitive neuroscience
- D. Evaluating quantitative and qualitative research
- E. Basic research designs
 - 1. Case study
 - 2. Ethnographic study
 - a. Participant observation
 - 3. Correlational study
 - a. Positive and negative
 - 4. Experiment
 - a. Causation
 - 5. Groups and variables
 - 6. Random assignment
 - 7. Laboratory, field, and natural experiments
- F. Developmental research designs
 - 1. Cross-sectional study
 - 2. Longitudinal study

3. Sequential study

G. Collaborative research

1. Meta-analysis

H. Ethics

1. Beneficence

2. Respect

3. Justice

5. TEACHING AND LEARNING ACTIVITIES

LECTURE TOPICS

LECTURE TOPIC 2.1: PRESENTING RESEARCH ON HUMAN DEVELOPMENT

It would be impossible to present everything that has been surmised and investigated concerning human development in one course. One of the primary problems is the prodigious amount of social science research relevant to human development. There has been an explosion in research interest in human development. Neither a single textbook, nor a single course, is able to adequately summarize the diversity of the research and the complexity of the conclusions. Therefore, the instructor must impress on the student the enormity of the task, and the challenge of applying what we think we know.

It is interesting to compare the work of early researchers such as G. Stanley Hall with current work in developmental psychology. Hall and his colleagues at Clark University, between 1894 and 1915, circulated numerous questionnaires to gather data about the typical development patterns of children. With the development of computerized and statistical programs and dissemination of information worldwide, child development is still the most often-cited research topic.

The answers to all the questions about human development are not available in the current research literature, but we do know a great deal more than Hall and his associates. A survey of the major journals (*Child Development*, *Developmental Psychology*, and *Monographs of the Society for Research in Child Development*) revealed articles that can be classified into basic categories of research themes. The themes include cognitive processes/abilities, language processes, physical development, socialization/personality/affect, and teaching/education. The most common topics in cognitive processes were perception, logic-reasoning, categorizing, and memory. Language processes focused mainly on semantics—meaning. Physical development and teaching/education were the emphasis of relatively few articles. The largest number of studies on a common topic addressed socialization/personality/affect, including child interaction with peer, parent, and adult, moral development, achievement, prosocial behavior/altruism/cooperation, and emotion/anxiety/fears. Of course, specialized journals focus on more specific or even different topics. However, the general overlapping with topics important in Hall's day is clear. Most conspicuous in its absence is religion. Perhaps we will soon see a reemergence of investigation on that topic.

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Society for Research in Child Development (SRCD): www.scrd.org

Child development abstracts and bibliography (1962–1963, pp. 36–37, 236–238) and (1979, p. 53, XXIV–XXVII).

Garbarino, J. (1992). *Children and families in the social environment*. New York: Aldine DeGruyter.

LECTURE TOPIC 2.2: TERMAN'S LONGITUDINAL STUDY OF HIGH-IQ CHILDREN

No longitudinal studies compare in length and uniqueness to the study started by Lewis Terman in 1921. Using his newly devised Stanford-Binet intelligence test in 1922, Terman tested 250,000 students in California and selected 1,528 of them for his study of “genius.” These 3- to 19-year-old students had IQs above 135. Terman wanted to demonstrate that “early ripe, early rot” was not true for the intellectually gifted. His early studies clearly demonstrated that the sample, on the whole, had better school performance, social adjustment, athletic prowess, and health than their contemporaries. They were definitely a unique group. Not only were they from the top 1 percent in terms of IQ, but the sample also had characteristics not shared by the general population. For example, a high proportion of participants were from white middle-class and professional families, and all were from California. Also, they experienced the Depression and World War II. Nevertheless, repeated testing over nearly 60 years revealed some interesting life-span findings about intelligence and development.

In 1960, a comparison was made between the 100 most successful (A group) and the 100 least successful (C group) men. In general, members of the A group were richer, healthier, and demonstrated better emotional and social adjustment. In the investigator's effort to find predictors of differences in these middle-aged men, several early characteristics seemed important. For example, in grade school, members of the A group skipped more grades and graduated early from high school. They also tended to join more clubs, participate in sports, and be involved in more activities such as hobbies and collecting. The A group came from more advantaged families; there were fewer parental divorces, and the parents encouraged independence and accomplishment. Members of the A group and C group focused on persistence as a reason for their success or relative failure. Members of the A group sought higher education and were more likely to become professionals.

Interestingly, the richest of the groups tended to have the least amount of formal education. In 1972, the entire sample was asked to reflect on what gave them the most satisfaction in life: occupation, family life, friendship, richness of cultural life, service to society, or their overall joy in living. The men had different responses in comparison to the women. The men rated family life number one in providing satisfaction, followed by occupational satisfaction. This is somewhat surprising, considering the higher amount of ambition and worldly skill possessed by these men. Also interesting is the tendency for the men in earlier career points to rate occupation number two, whereas in later career, joy in living was rated two rather than three. Friends, cultural life, and service were consistently rated four, five, and six, respectively. Rating family number one was best predicted by a happy home life as a child; a favorable attitude toward the father seemed especially important. Approximately 70 percent of the men had unbroken marriages—comparable to the national norms at 60 years of age. The approximately 21 percent who were divorced tended to remember unhappy conflicts with parents during childhood.

Most of the men valued and wanted a happy family. Interestingly, having a working wife correlated with having a less happy family.

The women agreed that family was their number-one satisfaction. However, occupation was rated number five. Instead, friends, joy, and culture were rated two, three, and four, respectively. Friends and cultural richness were especially important to the women. In general, for the women as well as the men, money was not the source of life satisfaction; but keep in mind that they were above the national median on income. Those women who were satisfied with their parents and early lives tended to be satisfied at later stages and had consistently good self-concepts. Fewer than half of the women worked. However, at age 62, almost all the women said they would have liked to work except when raising children. Career women (having a career was best predicted by high math ability in school and ambition) showed a very strong, high satisfaction with life. Almost the opposite of a representative national sample, the working women who were single were the most satisfied, followed by childless married women, divorced women, married women with children, and widows. Families seemed to become less important prerequisites for satisfaction. However, in terms of general happiness, married women with or without children were the happiest.

Robert Sears (himself a Terman subject) and Pauline Sears are carrying on three analyses of the sample. An exhaustive comparison of earlier data and data collected in 1977 is not yet completed. Overall, the achievement of the Terman sample is impressive and has definitely eliminated the belief that extreme scores on the IQ test have no predictive value. Yet, it must be remembered that although the group on the whole did well, the IQ test did not predict those who did comparatively poorly. In addition, from among the 1,528 “geniuses,” no recognized Nobel Prize winner, Picasso, or Mozart has emerged.

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LECTURE TOPIC 2.3: HEREDITARY INFLUENCES ON BEHAVIOR

Research in behavioral genetics suggests that individual differences in human development are substantially influenced by hereditary factors. The following are a sampling of studies investigating different behaviors.

Two longitudinal studies of cognitive development, the Louisville Twin Study and the Colorado Adoption Project, have found that genetic influences on IQ scores increase significantly during childhood and those genetic influences on IQ during early childhood correlate highly with genetic influences on adult IQ.

In the area of mental retardation, recent research has focused on the chromosomal condition known as fragile X syndrome. Fragile X syndrome is important because it is inherited as a recessive trait. This means that females with two X chromosomes have a buffer if only one X chromosome is defective, whereas males with a fragile X chromosome have no buffer and are at risk. Fragile X syndrome is estimated to be the second most common chromosomal cause of mental retardation and a major reason for the higher levels of mild mental retardation observed in males.

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Lecture Topic 2.4: Understanding Correlational Research

Give a more in-depth lecture on correlational research as students often misinterpret correlation and causation. It is beneficial to provide numerous examples.

Correlation does not equate to causation! For example, exercise is associated with reduced incidence of depression, as well as milder symptoms. However, it would be a mistake to conclude that exercise causes less severe depression (severely depressed people may not have the energy to exercise). It could be that some third variable affects the other two variables (interacting with others during exercise may affect depression, not exercise per se).

Define *correlation coefficient* (a statistic that provides a numerical description of the extent of the relatedness of two variables and the direction of the relationship). Values of this coefficient may range from -1.0 to $+1.0$. Thus, each correlation coefficient indicates the direction (denoted by positive or negative) of the relationship and the strength (the actual number) of the relationship.

A positive relationship is indicated by a correlation value that falls between 0 and 1.0. A positive relationship means that as one variable increases, the other variable increases
Examples:

- The more you eat, the more you weigh.
- The less you come to class, the lower your grade.
- The more you smoke, the greater the likelihood of lung cancer.
- The more red meat you eat, the greater the likelihood of heart disease.

A negative relationship is indicated by a correlation that is between 0 and -1.0 . A negative relationship means that as one variable increases, the other variable decreases. Examples:

- The more television a student watches, the lower his grades.
- The more cigarettes a person smokes, the lower his life expectancy.
- The longer a child is in an orphanage, the lower her score on an intelligence test..
- The better someone is at golf, the lower his score.

You want to ask students to generate possible third-factor variables that could be the root of these correlations.

Strength of the relationship: Zero indicates no relationship between the two variables; they do not vary together. The closer the number is to 0, regardless of the direction of the relationship

(positive or negative), the weaker the relationship between the two variables. Conversely, the closer the number is to +1.0 or -1.0, regardless of the direction of the relationship (positive or negative), the stronger the relationship between the two variables.

Remind students that significance, as denoted by p value, can occur even with a weak correlation, and that the “size” of the correlation strength varies as a function of area of inquiry. For example, in social psychology, a $r = .32$ is respectable but if I was looking at heritability of IQ I would want an r to be much larger, perhaps a $r < .46$.

Complete this lecture by providing an example of a correlational research study.

The instructor could further discuss some of the concepts given in the following links:

<http://methods.fullerton.edu/noframesindex.html> (Paul Cozby’s Research Methods Site at Fullerton)

<http://psych.csufresno.edu/psy144/Content/Design/Types/correlational.html> (07/24/2008) CSU at Fresno provides an expanded overview of research methods.

DISCUSSION TOPICS

DISCUSSION TOPIC 2.1: DEVELOPMENTAL PERSPECTIVES

Present the five different perspectives as an overview. Divide the class into groups of three or four students and ask them to list names, terms, and facts that they associate with each perspective. You could also include a biological perspective for added discussion of heredity and environmental factors. Investigate which perspectives the students are most familiar with and why. Conclude with a discussion of the similarities and differences among the perspectives.

DISCUSSION TOPIC 2.2: METHODS FOR STUDYING CHILD DEVELOPMENT

Present a list of possible research topics, or ask the class to generate a list of topics they might be interested in researching. Examples include: effects of parenting styles on grades obtained in school; effects of family’s attendance at church on the use of drugs during adolescence; and the effects of different kinds of formula on infants’ weight gain. Ask the class what methods could be used to research these different questions.

DISCUSSION TOPIC 2.3: LIMITATIONS OF CORRELATIONAL STUDIES

A very good example of the dangers and limitations of psychological research is the Bettelheim work on the causes of infantile autism. Bettelheim was a proponent of the psychoanalytic perspective and strongly believed that parent-child interaction contributed greatly to the child’s psychological development. He began to study the causes of infantile autism, a disorder in which the child is severely limited in ability to respond to the environment. What he observed was that

the mothers of these infants seemed cold and distant in their interactions with their babies. They did not seem to show the warmth, connectedness, and love that a “normal” mother would display. Bettelheim labeled these women “refrigerator mothers” and concluded that this detached parenting style was the cause of infantile autism. Because of Bettelheim’s stature in psychology, initially this work was well-received. Upon closer analysis, however, there were a number of problems in the structure of the research. Eventually, more scientific studies revealed that infantile autism is actually influenced by genetics. There is a very high concordance rate among monozygotic twins and far more males are affected with infantile autism than females. Bettelheim, in inferring causation from a correlation and without firm, rigorous experimentation to control for other variables, caused a number of parents to feel needless guilt and pain because they had been led to believe that they were responsible for their child’s abnormality.

DISCUSSION TOPIC 2.4: QUESTIONABLE CORRELATIONS

Often in class, the limitations of correlational results can be pointed out by using examples of correlations that are obviously not causal. One that demonstrates this would be the correlation between the number of elephants in certain American cities and the high number of murders in those cities. Are the elephants really causing the murders? What other explanations could there be for this correlation? Another example is the high correlation between shark attacks and ice cream sales. Here it is no doubt not the tasty ice cream swimmers have ingested that causes shark attacks but perhaps that when it is hot, both buying an ice cream and swimming in the ocean increase. Have students Google other misleading correlations (there are entire websites devoted to them) and discuss what third-factor variables could be responsible.

INDEPENDENT STUDIES

INDEPENDENT STUDY 2.1: ETHICAL RESEARCH

Have students create a list of topics, age groups, and behaviors that they consider unethical to investigate. Next, ask them to compare their lists with a classmate. The differences can be used to illustrate the value differences that exist in our society and how these value differences affect research in human development. Examples are: feeding a child fast food to see how much weight he or she can gain; what behaviors a child exhibits if he or she is allowed to watch wrestling every day.

CHOOSING SIDES

CHOOSING SIDES 2.1: ETHICS AND ANIMAL RIGHTS

Harold Herzog suggests summarizing at least two arguments often used by animal rights activists. The utilitarian argument uses the principle of equality to oppose the use of animals in research. The second argument is that at least some nonhuman animals have fundamental rights. This argument is based on inherent value and respect for animals. To facilitate thinking about these issues, Herzog has students decide which of the following hypothetical research projects should be conducted. Students are to imagine that they are on the Institutional Review Board or the committee for Animal Care and Use and they must provide rationales for which experiments can be conducted and why. If done in groups, students should be encouraged to reach consensus rather than a majority vote.

Case 1: Dr. Howard is a psychobiologist working on the frontiers of a new and exciting research area of neuroscience called brain grafting. Research has shown that neural tissue can be removed from the brains of monkey fetuses and implanted into the brains of monkeys that have suffered brain damage. The neurons seem to make the proper connections and are sometimes effective in improving performance in brain-damaged animals. These experiments offer important animal models for human degenerative diseases such as Parkinson's and Alzheimer's. Dr. Howard wants to transplant tissue from fetal monkey brains into the entorhinal cortex of adult monkeys; this is the area of the human brain that is involved with Alzheimer's disease.

The experiment will use 20 adult rhesus monkeys. First, the monkeys will be subjected to ablation surgery into the entorhinal cortex. This procedure will involve anesthetizing the animals, opening their skulls, and making lesions using a surgical instrument. After they recover, the monkeys will be tested on a learning task to make sure their memory is impaired. Three months later, half of the animals will be given transplant surgery. Tissue taken from the cortex of monkey fetuses will be implanted into the area of the brain damage. Control animals will be subjected to sham surgery, and all animals will be allowed to recover for 2 months. They will then learn a task to test the hypothesis that the animals having brain grafts will show better memory than the control group.

Dr. Howard argues that this research is in the exploratory stages and can only be done using animals. She further states that by the year 2000 about 2 million Americans will have Alzheimer's disease and that her research could lead to a treatment for the devastating memory loss that Alzheimer's victims suffer.

Case 2: Dr. Fine is a developmental psychobiologist. His research concerns the genetic control of complex behaviors. One of the major debates in his field concerns how behavior develops when an animal has no opportunity to learn a response. He hypothesizes that the complex grooming sequence of mice might be a behavior pattern that is built into the brain at birth, even though it is not expressed until weeks later. To investigate whether the motor patterns involved in grooming are acquired or innate, he wants to raise animals with no opportunity to learn the response. Rearing animals in social isolation is insufficient because the mice could teach themselves the response. Certain random movements could accidentally result in the removal of debris. These would then be repeated and could be coordinated into the complex sequence that would appear to be instinctive but would actually be learned. To show that the behaviors are truly innate, he needs to demonstrate that animals raised with no opportunity to perform any grooming-like movements make the proper movements when they are old enough to exhibit the behavior.

Dr. Fine proposes to conduct the experiment on 10 newborn mice. As soon as the animals are born, they will be anesthetized and their front limbs amputated. This procedure will ensure that they will not be reinforced for making random grooming movements that remove debris from their bodies. The mice will then be returned to their mothers. The animals will be observed on a regular schedule using standard observation techniques. Limb movements will be filmed and analyzed. If grooming is a learned behavior, then the mice should not make grooming movements with their stumps as the movements will not remove dirt. If, however, grooming movements are innately organized in the brain, then the animals should eventually show grooming-like movement with the stumps.

In his proposal, Dr. Fine notes that experimental results cannot be directly applied to human behavior. He argues, however, that the experiment will shed light on an important theoretical debate in the field of developmental psychobiology. He stresses that the amputations are painless and the animals will be well treated after the operation.

KNOWLEDGE CONSTRUCTION ACTIVITIES

KNOWLEDGE CONSTRUCTION ACTIVITY 2.1: APPLICATION OF TERMS

This activity will use the principles of generative learning, as explained in the introduction, to assist students in gaining a better understanding of terms. Divide the class into groups of four or five. Assign each group the task of generating an example for a term from this chapter. The example that each group creates cannot be one that has been used in class or in the book. They must think of a new application for the term that they are given. Groups are allowed to use their books and notes. By creating their own example of the term, they demonstrate an understanding of the term to the level of application. Several approaches can be used in this exercise. Students

may be given the entire list at once, but often one group will finish far ahead of the others and topics will get out of sequence. Another strategy is to give all of the groups the same term and then go around the room to discuss outcomes. This has been very successful, but also takes the most time. A third approach is to give each group a different term and see what examples they can generate.

Some generative terms for Chapter 2

Classical conditioning	Assimilation
Operant conditioning	Accommodation
Positive reinforcement	Case study
Negative reinforcement	Ethnographic study
Punishment	Sample
Observational learning	Population

KNOWLEDGE CONSTRUCTION ACTIVITY 2.2: POPULARIZED RESEARCH

Have students review parenting and other popular magazines to collect examples of popularized research in human development. Each student should bring two or three articles from different sources to class. Analyze these articles in terms of:

- Informational value to parents, educators, the public, and so on.
- General topics or themes shared by articles.
- Distribution across the three theories of human development defined in the text: learning theory, cognitive, and psychoanalytic.
- General viewpoints on the nature-nurture controversy.
- Reliance on scientific findings to support conclusions. If possible, determine the methodology of the studies (naturalistic observation, survey, experiment, etc.).
- Validity of conclusions and advice in the article.
- Age span involved.

KNOWLEDGE CONSTRUCTION ACTIVITY 2.3: ETHICS

Have students investigate the ethical standards established for research at their particular institution. Where is the institutional review board (IRB) located, and who serves on it? How does the IRB determine whether or not a proposed research project meets ethical guidelines? How do students' findings compare with the published guidelines from the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, or from the American Psychological Association's Committee on Ethical Standards in Psychological Research?

KNOWLEDGE CONSTRUCTION ACTIVITY 2.4: OBSERVING CHILDREN'S BEHAVIOR

Assign students to observe children's behavior in public settings, such as in a shopping mall, at a park, at a preschool, and on public transportation. If observing in a setting like a preschool,

students first need to contact the administrator to ask for permission and explain the purpose of the observation. In class, discuss with the students the problems associated with conducting effective, naturalistic observational studies which produce useful data.

KNOWLEDGE CONSTRUCTION ACTIVITY 2.5: THE NORMAL CURVE AND COMPILING DATA

To help students understand how the normal curve is established and how to collect data, present the following exercise: Divide the class into groups of two. Working in pairs, each group flips a coin 10 times. One student flips the coin, while the other student keeps a record of how many times heads comes up out of the 10 flips. Repeat this at least four times for each group of students. (You may want to bring a bag of coins to class or request that students bring their own prior to the class period.) After the flips are completed, 11 people in the class are assigned the task of tallying the results. Each person is assigned a number from 0 to 10. They are to compile the total number of times that the number they are assigned came up in the tallying. When these data are compiled, display them on the board in the form of a frequency polygon or a histogram. As you are aware, probabilities are that 5 out of 10 will be the most common finding, and the further that you get from 5, the less frequent the occurrence of that event.

KNOWLEDGE CONSTRUCTION ACTIVITY 2.6: EXPERIMENTAL METHOD

To illustrate the procedures and challenges of using the experimental method, propose a hypothesis and allow time for small groups to design an experiment to test it. A good hypothesis to test is that classrooms that are hot have a negative effect on student learning. Students will have to consider operational definitions as they specify what they mean by too hot and learning. Have students list their variables, experimental group, and control group. How can extraneous variables be controlled so that at the end of the experiment, causation can be established?

KNOWLEDGE CONSTRUCTION ACTIVITY 2.7: TEACHING ABOUT SAMPLING USING M&M'S

Bring a small package of plain M&M's (snack size) to class for each student. You may also encourage students to bring calculators to class, as this will make the activity easier for them. Tell students that their M&M's are an "intact random sample." Instruct them to open the package and count the contents by color. Have them convert their raw data into percentages. Ask each student to generate a hypothesis about the distribution of plain M&M's based on their sample. Then have students form pairs or small groups and pool their data. Finally, pool the data for the entire class.

Typically, this demonstration is an effective way to show how larger samples are more accurate. Mars, Inc., published information that states plain M&M's are 30 percent brown, 20 percent red, 20 percent yellow, 10 percent green, 10 percent orange, and 10 percent blue.

Reference

Smith, R. A. (1999). A tasty sample(r): Teaching about sampling using M&M's. In L. R. Benjamin, B. F. Nodine, R. M. Ernst, & C. B. Broeker (Eds.), *Activities handbook for the teaching of psychology, Vol. 4*. Washington, D.C.: American Psychological Association.

KNOWLEDGE CONSTRUCTION ACTIVITY 2.8: COMPARING THEORIES

It is important for students to attain a fundamental understanding of the major theories of child development early in the semester. If this is accomplished, your students will have a foundation of knowledge to build upon. One way to encourage students to take a greater interest and get a better understanding of the subject matter is to allow them to choose the theories that *they* have experienced. Divide the class into groups of approximately four students each and have each group choose its favorite perspectives from those that have been discussed. A key to the success of this exercise is that the groups have to come to a consensus within the group, and they have to provide a rationale for their choice. In order to encourage individual student participation, one member of the group is in charge of writing what the group has concluded, another member announces the group choice, still another explains the justification for choice number one, and the fourth member gives the rationale for the choice. As you travel around the groups providing prompts and encouragement, you will be amazed at the level of discussion that is generated.

KNOWLEDGE CONSTRUCTION ACTIVITY 2.9: TESTING PROVERBS

By either using the proverbs listed below or using one of your own, formulate a testable hypothesis based on the meaning of the proverb. Discuss what theory you think would best support your hypothesis and, discuss how you might design a study to test the hypothesis. Identify the following components of research as they apply to your study.

1. Hypothesis:
2. Type of study:
3. Independent variable:
4. Dependent variable:
5. Experimental group:
6. Control group:
7. Sampling method:

Potential research topics

Like father like son.

One bad apple spoils the barrel.

You can't teach an old dog new tricks.

Opposites attract.

The early bird catches the worm.

Some sources of proverbs

<http://www.bartleby.com> Bartlett's Book of Quotations

<http://quotations.about.com/od/proverbs/Proverbs>

APPLIED ACTIVITIES

APPLIED ACTIVITY 2.1: GENERATE RESEARCH QUESTIONS

Students will apply their knowledge of research to generate some questions. This strategy may ultimately lead to a generation of topics for term projects or research papers. It will also begin to provide students with some experience in thinking about the nature and limitations of research.

Students will:

- form small groups to brainstorm questions about child psychology (what are some things that you want to know about children that research could possibly answer);
- generate 5 possible questions;
- identify which questions might be empirically tested, eliminating or revising those that are not addressable by research methods;
- rank the remaining research questions in importance; and,
- explain to the entire class their number one research question and why this study would be a valuable contribution to knowledge in child psychology.

APPLIED ACTIVITY 2.2: CONSTRUCTING A RESEARCH STUDY

Selecting a research question from the previous activity, or generating an original one, students will form small groups to respond to the following:

- What is your hypothesis?
- What is your population?
- What is your sample?
- Define your experimental group.
- Define your control group.
- How will you assign participants to groups?
- What is your independent variable?
- What is your dependent variable?
- How will you operationalize these terms?
- Are there any confounds or nuisance variables operating?

THE TEN-MINUTE TEST

Name: _____

Answer the questions below, utilizing the following terms.

social learning	ethological	hypothesis	independent variable
mechanistic	correlational	organismic	psychosexual
learning	naturalistic	laboratory	longitudinal
cross-sectional	sequential	psychosocial development	
experiment	theory	evolutionary/sociobiological	

1. A(n) _____ is a coherent set of logically related concepts that seeks to organize, explain, and predict data.
2. The _____ model views development as a passive, predictable response to environmental input.
3. _____ is an eight-stage theory involving a crisis and occurring over the life span.
4. According to _____ theory, behaviors are learned by observing and imitating models.
5. The _____ perspective focuses on biological and evolutionary bases of behavior.
6. In a _____ observation, all participants are observed in the same situation, under controlled conditions.
7. If one were investigating to see if there was a statistical relationship between variables, the best type of study would be a(n) _____ study.
8. A rigorously controlled, replicable procedure in which the researcher manipulates variables to assess the effect of one on the other is called a(n) _____.
9. In an experiment, the condition over which the researcher has direct control is the _____.
10. A study designed to assess changes in a sample over time is a(n) _____ study.

ANSWERS TO TEN-MINUTE TEST

1. theory
2. mechanistic
3. psychosocial development
4. social learning
5. evolutionary/sociobiological
6. laboratory
7. correlational
8. experiment
9. independent variable
10. longitudinal

6. RESOURCES FOR INSTRUCTORS

Books and Journal Articles

Abelson, R. P. (1995). *Statistics as principled argument*. Hillsdale, NJ: Erlbaum.

Bjorkland, D. F., & Pelligrini, A. (2001). *Origins of human nature: Evolutionary developmental psychology*. Washington, D.C.: American Psychological Association.

Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Boston: Houghton Mifflin.

Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for field settings*. Boston: Houghton Mifflin.

Damon, W., & Lerner, R. (2006). Theoretical models of human development. *Handbook of Child Psychology, Vol. 6*. New York: Wiley.

Meltzoff, J. (1998). *Critical thinking about research: Psychology and related fields*. Washington, D.C.: American Psychological Association.

Miller, P. H. (2001). *Theories of developmental psychology; fourth edition*. New York: W.H. Freeman.

Slife, B. D., & Williams, R. N. (1995). *What's behind the research? Discovering hidden assumptions in the behavioral sciences*. Sage: London.

Stanovich, K. E. (2006). *How to think straight about psychology, eighth edition*. New York: Longman.

Turkewitz, G., & Devenny, D.A. (Eds.) (1993). *Developmental time and timing*. Hillsdale, NJ: Erlbaum.

Vygotsky, L. S. (1978). *The mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Video Resources

Please take an opportunity to look at “Connect” for several videos available in the McGraw-Hill library.

McGraw-Hill also has an extensive database of video clips available in the **McGraw-Hill’s Visual Assets Database for Life-Span Development (VAD 2.0)** (<http://www.mhhe.com/vad>). This is an online database of videos for use in the developmental psychology classroom created specifically for instructors. You can customize classroom presentations by downloading the videos to your computer and showing the videos on their own or inserting them into your course cartridge or PowerPoint presentations. All of the videos are available with or without captions.

McGraw-Hill also offers other video and multimedia materials. Ask your local representative about the best products to meet your teaching needs.

Other suggested films are widely available on sites like Amazon.com, documentary wire, Hulu, netflix.com, PBS video, etc.

Ethical Issues in Studying Infants

VAD Item #274

Albert Yonas, University of Minnesota

As Albert Yonas explains, he does not do anything in his experiments but present objects to infants and observes their actions. He says that the only “harm” he does to babies is perhaps to bore them. Parents, who are always present during Yonas’ experiments, can remove their child from a test anytime he or she frets or seems to become distressed. Of the thousands of letters Yonas sends to parents of new babies each year inviting them to make their infants available to his recruitment pool for experiments, only 8 to 10 percent respond. Yonas or one of his associates calls these parents and describes in detail the current study. At that point, the parents have the option of entering their children in the study or opting out.

Yonas admits that the infants have taught him how to conduct research studies. He employs the responses that a child normally uses, like reaching for a desired object, grasping it, and putting it in his or her mouth. In one of his studies, Yonas takes advantage of those kinds of responses by placing objects just out of the infant’s reach in a test of depth perception. In order to get an infant to reach for something a number of times, Yonas mentions that he uses an appealing toy, like a

Miss Piggy doll or a tiny Kermit the Frog toy, that the child would be interested in on his or her own.

Understanding Research: Annenberg Learner (formerly Annenberg Foundation – Cooperation for Public Broadcasting)

This is a great interview of Phil Zimbardo discussing research in psychology. It covers methods, data collection, and critical thinking. This can often be found through MHHE general resources for Students and Faculty:

(<http://www.mhhe.com/socscience/psychology/psychonline/general.html>) or through the “Discovering Psychology: Updated Edition” link:
<http://www.learner.org/resources/series138.html>.

The Human Experiment: Ethics in America

Dr. C. Everett Coop, former Surgeon General, discusses ethics in human experimentation in the medical field. This can lead to a discussion of when research is OK. Is it OK for medicine but not psychology? Is it OK for adults but not children? And what of animal research? It can be found at: www.learner.org/resources/series81.html.

Other video resources for use in Human Development Courses

Center on the Developing Child: Harvard University

<http://developingchild.harvard.edu/>

This is an online resource that involves video, as well as current research clips for use in developmental psychology classes, created specifically for instructors. You can customize classroom presentations by embedding some of the clips or use various clips or activities as assignments for students.

Multimedia Courseware for Child Development Charlotte J. Patterson, University of Virginia

This video-based two-CD-ROM set (ISBN 0-07-254580-1) covers classic and contemporary experiments in child development. Respected researcher Charlotte J. Patterson selected the video and wrote modules that can be assigned to students. The modules also include suggestions for additional projects as well as a testing component. Multimedia Courseware can be packaged with the text at a discount.

The Mind

“The Mind” is a series that looks at myriad factors relevant to cognitive, biological, and developmental psychology. The entire series can be found at:

<http://www.learner.org/resources/series150.html> or through the McGraw-Hill Higher Education General Resources for Students and Faculty Annenberg/CPB projects link <http://www.mhhe.com/socscience/psychology/psychonline/general.html>.

The World of Abnormal Psychology

“The World of Abnormal Psychology” is a video series that covers a wide range of topics such as ADHD, conduct disorders, autism, and separation disorders and can be found at:

<http://www.learner.org/resources/series60.html> or through the McGraw-Hill Higher Education General Resources for Students and Faculty Annenberg/CPB projects link <http://www.mhhe.com/socscience/psychology/psychonline/general.html>.

The Brain: Teaching Modules

“The Brain” is a series that looks at myriad factors relevant to cognitive, biological, and developmental psychology. The entire series can be found at:

<http://www.learner.org/resources/series142.html> or through the McGraw-Hill Higher Education General Resources for Students and Faculty Annenberg/CPB projects link <http://www.mhhe.com/socscience/psychology/psychonline/general.html>.

Discovering Psychology: Updated Edition

“Discovering Psychology: Updated Edition” is a general series with several clips that can be used in a human development course and can be found at:

<http://www.learner.org/resources/series138.html> or through the McGraw-Hill Higher Education General Resources for Students and Faculty Annenberg/CPB projects link <http://www.mhhe.com/socscience/psychology/psychonline/general.html>.

Seasons of Life

“Seasons of Life” is a series that covers various stages of life and is wonderful for a human development class. The series can be found at: <http://www.learner.org/resources/series54.html> or through the McGraw-Hill Higher Education General Resources for Students and Faculty Annenberg/CPB projects link

<http://www.mhhe.com/socscience/psychology/psychonline/general.html>.