3

Theories and Principles of Learning

CHAPTER OUTLINE

INTRODUCTION

The teaching and learning process as a component of the nurse–client relationship in the Miller–Stoeckel Client Education Model involves understanding theories and principles of learning and how they enhance client education (**Figure 3-1**). This chapter begins by introducing the value of theory and how theories help us understand observations and experiences. We examine the learning theories of **behaviorism**, **cognitivism**, and **social cognitive theory** and how each conceptualizes how people learn.

For each theory you will learn how to apply theory to working with clients as learners in a health education context. We also consider learning principles that are applicable to client education. This knowledge is applied to situations in which nurses are the primary educators and clients are the primary learners.

VALUE OF THEORY

Theory is a way to explain some observed phenomenon. Expressed as abstract thoughts or general subject principles, theories help make sense of the world and research findings (The Merriam-Webster Dictionary, 2016). Theories provide the theoretical framework to view the process of learning,

FIGURE 3-1

Nurse–Client Relationship in the Miller–Stoeckel Client Education Model

- Nursing process
- Teaching/learning process
- Clinical judgment
- Evidence-based nursing practice

Nurse as Educator

Healthcare Institutions
Public Health
Health Education Programs

Client as Learner

Individuals
Families
Groups/Communities
Health Team Members
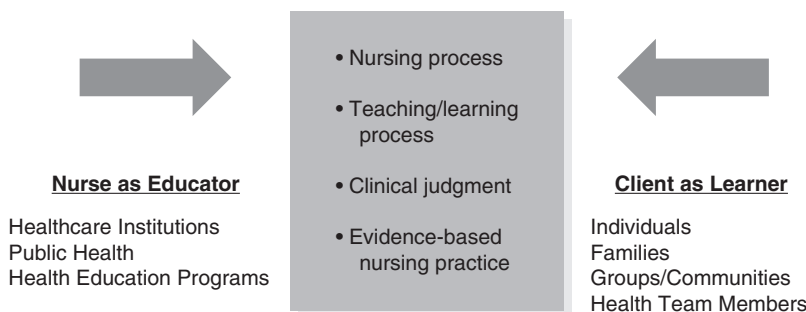
the progress of learners, and nurses' role as educators. Although theories help to understand learning, no single theory explains everything about a subject.

Nurses are pragmatic and eclectic thinkers. Nurses freely select ideas from diverse sources and conclude that something is good if it works. For example, when you observe something, you try to make sense of it by fitting it into your mental and experiential framework. This is most effective when you know something about what is observed and have had experience with it. When you observe things that are outside your framework—that is, things for which you have neither an explanation nor experience—you become curious and begin to seek answers. Current emphasis on using evidence-based research leads us to look to the current literature for studies that answer questions. This search for answers is the foundation of theory development. Theory helps make sense of what you observe; it is a way to view relationships among observed phenomena. **Box 3-1** identifies how theory is useful.

THEORIES OF LEARNING

Learning theories provide the theoretical framework to understand how people learn. We want to know how people acquire new knowledge, develop skills, modify attitudes and values, and learn new behaviors. We know that learning is a dynamic, lifelong process that is unique to each individual.

In the context of health education, knowing about learning theories is a way to understand how people learn. Theory-based teaching is an effective way to organize your thinking and conceptualize what you want to convey to clients and team members. Clients experiencing health problems may need to learn new ways to maintain their health or deal with illness or disability. This is the time when clients are motivated to learn about their changing health status. Team members may also need to learn about new illnesses and new procedures. This need for continuing education falls under the nurse's purview as an educator.

There are various definitions of learning. Common to most definitions is the notion that a change occurs in the learner's *behavior*, *attitudes*, or *skills* (Merriam, Caffarella, & Baumgartner, 2007). The behavioral change is both observable and relatively permanent (Olson & Hergenhahn, 2013). Broadly speaking, learning theories fall into two camps: behaviorism and cognitivism (Ormrod, 2016). **Behaviorism** focuses on tangible, observable behaviors, such as learning to give

BOX 3-1

Reasons for Theories

You need a theory when you:
- Confront a new situation and what you already know does not apply to that situation
- Want to increase your understanding of something relatively familiar
- Face a familiar situation, but what you already know does not work
- Wish to teach what you know to a colleague or client
- Question the validity of a cherished belief
- Explore new hypotheses
- Observe events for which you can find no explanation

an injection, changing dietary practices, and safely bathing an infant. **Cognitivism** focuses on the thought processes as humans learn; for example, seeing a relationship between food intake and blood glucose levels, using memory tricks to recall health instructions, and gaining insight into one's own behavior. Because there are many learning theories within these two camps and different ways to group them, for purposes of this discussion we will look at two theories of behaviorism (*stimulus–response* and *operant conditioning*), two theories of cognitivism (*gestalt* and *information processing*), and **social cognitive theory**.

BEHAVIORAL VIEWS OF LEARNING

Behavioral learning theories were among the first to be developed and were the first to be used in the U.S. educational system. They continue to be pervasive. Some assumptions that have historically supported behavioral research and theories follow (Ormrod, 2016).

■ Humans and animals learn in similar ways; consequently, early researchers studied rats and pigeons and applied that to human learning.
■ Studying stimuli and response objectifies the learning processes.
■ Internal processes, such as thoughts, motives, and emotions, are unimportant in understanding learning because they are not observable. Later behaviorists stated that motivation and the strength of the stimulus–response associations were important.
■ Learning involves changing behavior.
■ Organisms are born as blank slates with learning occurring after birth.
■ Learning is largely the result of environmental events that condition behavior.
■ The most useful theories explain behavior with as few learning principles as possible.

Learning for the behaviorist is focused on an observable change in the learner's behavior and is not concerned with the internal thought processes of the learner. The learner as a research subject is described as an organism rather than a person or human being. Behaviorists believe that the learner's behavior is shaped by elements in the environment that either precede the behavior (stimulus) or the consequences that follow it. These preceding events can precipitate the behavior, and the events that follow can have positive or negative consequences on the behavior. These events must occur closely in time so that a bond is formed, which is called the principle of contiguity (Olson & Hergenhahn, 2013). An example of a preceding event is a nurse approaching a child with a clearly visible syringe, intending to vaccinate him. The sight of the syringe frightens the child, who anticipates pain, starts crying, and clings to his mother for protection. Thereafter the child may be frightened of syringes until he matures and learns differently. An example of a reinforcing event is a smile and hug from the child's mother that assures him he is safe and well. The child knows he can find solace and protection from his mother and will seek her out in future frightening situations.

Behavioral theories today encompass a number of individual theories and continue to be widely applied in understanding how people learn. We review the stimulus–response theories of Pavlov, Thorndike, and Guthrie, as well as Skinner's operant conditioning.

Stimulus–Response

Stimulus–response theories have their origins in the 19th century with Ivan Pavlov (1849–1936) and Edward Lee Thorndike (1874–1949), who studied how animals and humans learn. Pavlov was

a Russian physiologist who is famous for discovering the principle of classical conditioning in his work with a hungry dog. He discovered that when meat powder was placed in a dog's mouth, the dog automatically salivated (unconditioned stimulus). When a bell was sounded simultaneously with the offering of meat powder, the bell (conditioned stimulus) became paired with the dog's salivation. Eventually the bell by itself stimulated the dog to salivate. If the bell was presented often enough without the accompanying meat powder, the dog eventually stopped salivating. This phenomenon was called *extinction*. Pavlov's experiment is commonly known as classical conditioning (Ormrod, 2016).

Thorndike did extensive pioneering research in learning, and his work is considered the first modern theory of learning. He noted that the most characteristic method of learning for both animals and humans was trial and error, also called connectionism or the stimulus–response theory of learning. The organism confronts a problem and selects a response most likely to lead to the goal. Much random behavior occurs until the goal is met. On each successive trial the random behavior decreases and the goal-directed behavior increases. This forms the basis for the principle of positive reinforcement that Thorndike called the *Law of Effect*. It means that the organism remembers responses that had satisfying effects, which strengthens the connection. If the responses were unsatisfying, the strength of the connection decreases. Thorndike formulated two other laws, the Law of Exercise and the Law of Readiness. The *Law of Exercise* states that repeated use of meaningful connections results in substantial learning, whereas lack of connections inhibits learning. The *Law of Readiness* states that learning is enhanced when the organism is ready for the connection; otherwise it is inhibited (Olson & Hergenhahn, 2013).

Edwin Ray Guthrie (1886–1959) built on the work of Thorndike and Pavlov. Guthrie felt that the rules they proposed were unnecessarily complicated; he proposed one law of learning, the Law of Contiguity (Olson & Hergenhahn, 2013). He wrote, "A combination of stimuli which has accompanied a movement will on its recurrence tend to be followed by that movement" (Guthrie, 1935, 1952, p. 23). In other words, events that occur together in time tend to be paired. If, for example, a person did something in a given situation, he or she tends to repeat the action when faced with that situation again. Guthrie proclaimed, as do behaviorists today, that a science of psychology must be based on a study of what is observable: behaviors, bodily changes, or data that can be detected by an observer or a measuring device. All data are admissible except introspection, which can be reported only by the person. Later Guthrie revised his theory to recognize the many stimuli to which the organism is exposed and that associations cannot be formed with all of them. The organism responds selectively to only a small number of stimuli, and those are the ones that become associated with the response. What captures the organism's attention becomes important along with the association that is formed.

Operant Conditioning

Burrhus Frederic Skinner (1904–1990) is probably the most familiar of the behaviorists in the United States. He is famous for his Skinner box, an experimenter-controlled cage in which the behavior of animals (rats and pigeons) was studied. Skinner acknowledges two kinds of learning. The first is *respondent behavior*, which occurs in response to a known stimulus, such as a knee jerk in response to an examiner's hammer. The second type of learning, which Skinner believes is more important in human behavior, is an *operant response*, which refers to the consequences of behavior. When a response is reinforced, whether random or planned, the behavior tends to be repeated; when the

consequences are unpleasant, the behavior tends to be suppressed (Slavin, 2015). This statement is a simple way to explain operant learning. Most human behavior is the result of operant learning, according to Skinner.

Propositions of Behavioral Theory

The propositions of behavioral theory as they are understood today are as follows (Olson & Hergenhahn, 2013; Slavin, 2015):

1. Behavior that is followed by reinforcement tends to strengthen the behavior. After being taught how to transfer from a bed to a chair, a client is given smiles and verbal encouragement from the nurse. Praise reinforces the client's behavior and increases the likelihood of further attempts to transfer.
2. Behavior followed by punishment tends to be suppressed. For example, a young man is compliant with his father's commands because he knows that his father will react negatively to his behavior. The son complies because he has learned that rebellion or questioning will result in punishment.
3. Behavior followed by the removal of a negative stimulus tends to increase in strength. Deep breathing relieves tension during an asthma attack and thus decreases the severity of the attack. When clients experience how proper breathing makes a difference, they are motivated to continue this type of breathing.
4. Behavior that tends to recur is in some way being reinforced or is reinforcing itself. An infant crawls and gets into things because it is fun and satisfies the infant's curiosity. Overeating under stressful conditions is reinforcing when it relieves anxiety.
5. A behavior may serve to reinforce or strengthen another behavior. Some individuals can be persuaded to act appropriately for something they value. For example, a client can be given something in exchange for sitting quietly.
6. Irregular and inconsistent reinforcement of a behavior strengthens the continuance of that behavior. Parents who try to resist an uncooperative child's demands but who eventually give in are inadvertently strengthening the behavior with the most powerful method known: intermittent reinforcement.
7. Immediate and consistent reinforcement of a behavior strengthens that behavior most rapidly. A breastfeeding baby soon learns that sucking satisfies hunger.
8. Rewards that are specific to and desired by the learner are more powerful than general or routine rewards. A teenage client may respond well to compliments from the nurse, whereas another client may respond better to matching wits with the nurse.
9. Rewards and punishments that are clearly connected to the behavior are more powerful than vague or inconsistent responses. A client who moves in certain ways after surgery quickly learns that certain motions produce pain, so those movements are avoided. This principle helps explain why eating disorders are so difficult to change. The pleasure or relief that the overeater experiences outweighs the hazards because the pleasure is more immediate and the hazards are more remote. The effects of overeating do not show up on the body or the scale for days, and the health hazards may not become evident for many years. The connection between overeating and health issues is vague and inconsistent because other variables, such as genetics and exercise, are thought to add to or reduce the health risks.

10. Behavior that receives no response and meets no biologic need tends to extinguish. Children bring home new words that they hear while playing. Some of the words may include language the family does not sanction. Children who experience no response when they try out the new vocabulary tend to lose interest in those words.

Behavior modification is the application of learning theory to modify a behavior by changing the stimulus that elicits it or by changing the consequences that follow it. Classical conditioning emphasizes that whatever came before a behavior (antecedent event) influences that behavior (responding behavior). Operant conditioning stresses that a behavior is influenced by the response that follows. A behavior that is followed by a negative response or no response at all will diminish, whereas a behavior followed by a positive consequence will increase. When both of these theories are applied together, behavior is seen as a result of an antecedent event, and that behavior is further influenced by the consequences that follow it. This is illustrated in **Figure 3-2**.

Implications for Health Education

To increase a desirable behavior, the educator changes the antecedent event to one that is more likely to evoke the desired behavior or reinforces the desired behavior when it occurs or does both actions. An example of controlling antecedent behavior is to advise a client who is learning weight control to shop on a full stomach and use a shopping list. The antecedent event of a full stomach and a shopping list prepared in advance influences shoppers' behavior in the desired direction: wise shopping for wholesome food.

FIGURE 3-2

Stimulus-Behavior-Consequences. To change a behavior, you can change the stimulus that elicits it and/or the consequences that follow it.
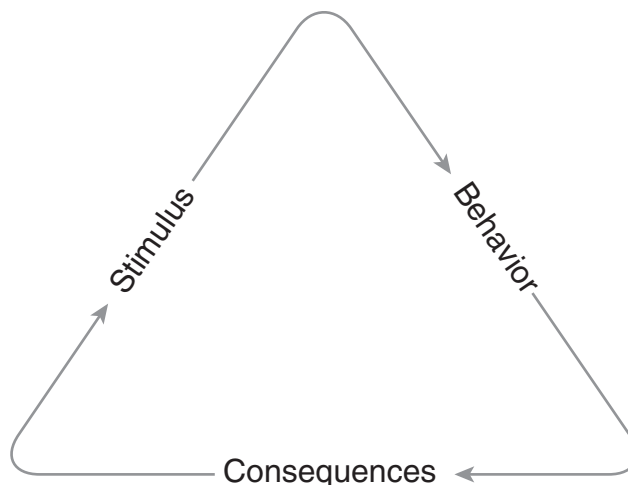
Using behavioral principles, the nurse identifies a client's desired behavior and then creates an environment that stimulates the client to comply by producing this desired response. When the desired behavior occurs, the nurse reinforces it. Immediate reinforcement increases the likelihood that the behavior will recur. Over time the nurse moves from reinforcing the behavior every time it occurs to an intermittent reinforcement schedule. This gives the new behavior more stability.

Educators have discovered that punishment is not a long-term solution to undesirable behavior. Punishment may indeed suppress it, but if the behavior is meeting some need, that behavior is likely to return as soon as the threat is removed. Another possible consequence of punishment is erratic and unpredictable response. The most effective way to eliminate an undesirable behavior is to find out what need the behavior is meeting and reinforce a more desirable method of meeting that need. The example used previously was an uncooperative child. It could be applied just as easily to an uncooperative client of any age. Solutions to this problem include frequent, pleasant, and predictable attention by nurses along with encouragement and assistance.

COGNITIVE VIEWS OF LEARNING

Cognitivism (also known as cognitive psychology) is the predominant theoretical perspective for studying human learning today. Its focus is on the cognitive processes; that is, "how people perceive, interpret, remember and in other ways think about environmental events" (Ormrod, 2012, p. 141). Whereas behaviorism focuses on observable behavioral changes, cognitivism expands the understanding of learning to include internal mental processes unique to each person, such as perception, insight, and meaning (Olson & Hergenhahn, 2013; Ormrod, 2016). Some underlying assumptions that support the cognitive view of learning follow (Ormrod, 2016).

■ Some human learning is unique and differs from how animals learn.
■ Learning is a mental activity and may not result in overt behavioral changes.
■ People exert some control over their learning and actively participate in learning.
■ Knowledge is organized and connected to the person's knowledge, beliefs, attitudes, and emotions.
■ Unobservable mental processes can often be reasonably inferred by observable behavior.

Cognitive views of learning encompass several perspectives; in this section we focus on *Gestalt psychology* and *information processing theory*.

Gestalt or Cognitive Field View of Learning

Three German psychologists, Max Wertheimer (1880–1943), Wolfgang Köhler (1887–1967), and Kurt Koffka (1886–1941), departed from behaviorism and are considered the founders of Gestalt psychology. Later another German Gestalt psychologist, Kurt Lewin (1890–1947), developed a field theory of human learning. These psychologists insisted that behavior was much more than a conditioned response and that perception and memory can be studied by introspection in addition to external observation. Further, they posit that humans selectively perceive and react to complex patterns of stimuli as wholes, not as disconnected parts. It is the total pattern of stimuli that determines what a person perceives and learns (Olson & Hergenhahn, 2013; Ormrod, 2016).

Gestalt is a German word that means "the configuration or pattern" (Olson & Hergenhahn, 2013, p. 240), the whole or totality. In the field of gestalt psychology the concept means that the whole is more than merely the sum of its parts. Gestalt psychologists hold that psychological phenomena are irreducible wholes that cannot be derived just from analysis of their parts. If the totality of a particular perception is dissected, the meaning is lost.

Perception refers to the act of becoming aware of something by the use of any of the senses. To perceive means to take notice of, observe, detect, become aware of in one's mind, achieve understanding of, or apprehend. Perception refers to the portion of the world that is grasped mentally through sight, hearing, touch, taste, and smell (The Merriam-Webster Dictionary, 2016). Perception can vary among individuals and may be different from the reality of the situation.

Our perception of any object is affected by the context in which we become aware of it. Clients who are in an unfamiliar hospital and in pain will perceive your messages differently than clients who greet you in their homes. Team members who just heard about another reduction in work force and feel overloaded with responsibilities will perceive your messages differently than those who feel in control of their circumstances. Our perceptions of events are affected by life experiences and interests.
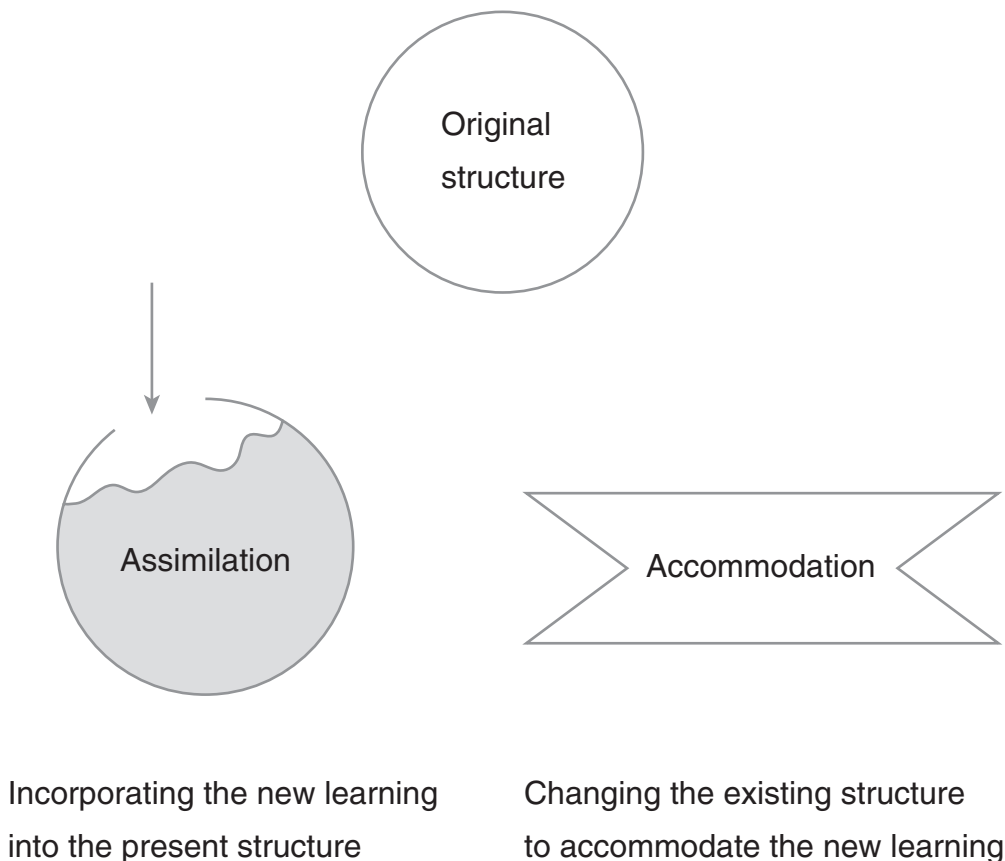
Gestalt and cognitive field theories of learning take into account both the learner and the learning context and all of the individual's experiences and perceptions. In many circumstances individuals' perceptions are dissimilar, and other possible perceptions are not easily seen. Even individuals who experience the same event at the same time may have different perceptions of that event. Because of the tendency to assume that others perceive events the same way you do, you may be unaware that clients may see events differently.

It is important to look for clues to these perceptual differences and address them. Review the example of the 23-year-old Hispanic woman from a previous chapter who had given birth to her second child and subsequently experienced kidney failure. On her fifth day of undergoing peritoneal dialysis, the client asked what the doctor had left in her body that the nurses were trying to wash out. She understood neither the treatment nor the reason it was necessary. Had she not asked the question, her misunderstanding would never have been known. It is important to listen carefully and assess client perceptions.

Lewin stated that each individual exists in an environment known as a field or life space, affected by many forces. *Life space* is a psychological field unique to each individual and includes things to which the person reacts; for example, material objects, people, private thoughts, tensions, and goals. He proposed that behavior is the interplay of these forces in the life space at the moment in which the behavior occurs. Analysis begins with examining the environment as a whole. Lewin made it clear that the environment as interpreted by the individual did not necessarily correspond with reality. Learning occurs as a result of a change in individual psychological interpretations or changes in the internal needs or motivations of the individual (Knowles, Holton, & Swanson, 2005; Olson & Hergenhahn, 2013).

Jean Piaget (1896–1980), a Swiss psychologist, focused his detailed studies on the thinking process of children (1972). He conducted one-on-one interactions during which he presented various stimuli to infants and children. He then observed and recorded their responses. The responses led him to believe that thinking and learning are active processes, not merely passive or trial-and-error responses to stimuli as behaviorists believe. As the children grew old enough to speak, Piaget spoke with the children as he conducted the experiments. He concluded that intellectual development is a gradual process that evolves over time.

Learning is a transactional process in which individuals gain further understanding, new insights, or more developed cognitive structures through interaction. Two ways of learning that Piaget identified were *assimilation* and *accommodation*. Assimilation is a way of learning in which new ideas are incorporated by association with known ideas, concepts, and memories. Individuals may assimilate new ideas into their current beliefs. If the knowledge is different from what they already know, they may respond with the intellectual process known as accommodation, which is more difficult than assimilation. When accommodating new ideas, individuals give up former beliefs or substantially change their frame of reference, or they do both. Accommodation may also occur after a person has assimilated so many new concepts that the concepts can no longer be contained in the person's old cognitive structure. A paradigm shift occurs in the aftermath of an accumulation process (Olson & Hergenhahn, 2013). **Figure 3-3** illustrates assimilation and accommodation.

FIGURE 3-3

Assimilation and Accommodation

Incorporating the new learning into the present structure

Changing the existing structure to accommodate the new learning

Implications for Health Education

Nurses frequently deal with clients who are undergoing life transitions, such as birth, death, parenthood, or divorce. They also deal with clients who experience alterations in personal integrity, such as physical assault, accidental loss of sight or limb, loss of a way of life, or surgical removal of an organ. Such transitions can force clients into reconstructing and reorganizing their perceptions of themselves and reality (Edelman, Kudzma, & Mandle, 2014; Selder, 1989). When clients struggle with questions such as Who am I? and What is life about? they are going through the process of accommodation.

The following is an example of the use of gestalt psychology in teaching children. The nurse involved with doing preoperative teaching of young children arranges for the children and their parents to come to the day surgery area for a visit. While the children are in the unit, they see a video portraying surgery from a child's perspective. The video tells them the following:

> You wear green pajamas with a hat and socks to match. You get a shot (ouch) that makes you sleepy, and you ride on a table with wheels. The ceiling and people look funny when you ride flat. When you wake up, you will be sore, but you will get more shots that will make the soreness go away.

After the video the children are led to a room with pieces of equipment, drapes, and surgical clothing that they are invited to play with. Dolls set up with various kinds of medical equipment (without real needles) are also within reach so that children can handle and play "operation." The nurse observes the children and listens to their conversations, using their responses as clues to what further teaching might be needed.

The main goal of the gestalt psychology perspective is to promote understanding and insight. Nurses as educators assess the client's perceptions and design a learning situation that will stimulate interest and understanding. Nurses organize the learning situation to fit the client's developmental stage, previous experiences, and learning ability.

Information Processing View of Learning

Another view of human learning is a sophisticated form of information processing. This view of learning was inspired by advances in computer science by theorists who hypothesized that human minds perform mental operations like computers. Slavin (2015) described a model of information processing proposed by Atkinson and Shiffrin as a model of information processing with three components focusing on how individuals register sensory information taken in from the environment (**sensory register**), how they process information (**working memory**) and how that information is stored and retrieved **(long-term memory)** (Slavin, 2015).

The first component of the information processing model is the sensory register, which receives large amounts of information from the five senses: sight, hearing, touch, smell, and taste. This component decides whether or not to notice or register an external sensory bit of information, such as an odor, flavor, touch, sound, or visual stimulus. It also decides whether or not to register sensory information that is internal; for example, an itch, a chill, a peristaltic wave, a headache, or a memory. Individuals' interpretation of sensory information is influenced by many factors, such as past experiences, knowledge, motivation, culture, gender, and so forth. The information is quickly lost if it is given no further attention. Individuals must pay attention to the sensory information if it is to be retained. People retain less if they are bombarded with too many diverse stimuli at one time (Slavin, 2015).

The second component of the information processing model is working memory, also called short-term memory. Here the individual pays attention to sensory information. Working memory holds thoughts a person is conscious of having at any given moment. The storage capacity of working memory appears limited in most individuals and holds approximately five to seven thoughts. As if they were bowling pins, ideas in the mind can be crowded out by the introduction of more items. These thoughts can be related to what the person is feeling, doing, or thinking at the moment, or they can be related to thoughts retrieved from storage in long-term memory that are associated with current stimuli. In this component the mind processes the information by organizing it for storage, or associating it with other information, or discarding it. When the person stops thinking about the sensory information, it disappears from working memory.

For example, a nurse admits a small child for surgery who is tightly clutching a teddy bear. While observing the child's color, breathing ability, alertness, and the parent–child interaction, the nurse remembers a teddy bear from years ago or that of a daughter or son. Such recollections make the nurse more sensitive to the child at hand. If too many memories impinge on the nurse's consciousness, the memories may detract from the nurse's ability to note and track client data. Another example is a charge nurse giving instructions to a health team member at the change of shift. The team member is struggling with personal issues, including a paraplegic husband at home without a caretaker. Her personal concerns are crowding the space that might store the instructions she is receiving from the charge nurse.

The third component of the information processing model is long-term memory, in which an infinite amount of information is stored for a prolonged period of time. Long-term memory is thought to have a large capacity provided that it has not been damaged by pathology. Stored in long-term memory are images and thoughts about past experiences (episodic memory); facts, knowledge, general information that we have learned, and problem-solving and learning strategies (semantic memory); and procedural knowledge, such as how to do things like giving an injection, riding a bike, and general living skills (procedural memory) (Squire, Knowlton, & Musen, 1993).

Implications for Health Education

The nurse's job as an educator, from an information processing point of view, is to provide the client with new information. It is important to divide learning into steps that are compatible with the client's health, intelligence, and previous learning experiences. The nurse assists the client in acknowledging current beliefs that enhance or inhibit learning. The new information is then translated into a message that the client is able to process. This involves capturing the client's attention through teaching strategies and teaching materials. Selecting attractive, colorful materials with sufficient emphasis on fonts and type size helps clients attend to the message.

The information processing model is particularly useful for teaching skills online, such as procedures that must be done in an ordered sequence. As educators, nurses assess educational needs and choose online resources to facilitate learning. This is a useful teaching strategy for individuals who are self-directed, visual, and experienced with computers. Nurses give feedback through discussion forums, email, or phone calls.

In using the information processing model, it is important for nurses to avoid overloading clients with too much information, especially if the information is new. If a lot of information must be communicated in a short period of time, try grouping the information in categories that make sense. For example, if you are teaching a client who has been newly diagnosed with diabetes, it would

be helpful to create groupings of information to aid the client's memory. Grouping information for diabetic clients includes dietary information, exercise routine, injection procedure and supplies, and signs and symptoms of hyperglycemia and hypoglycemia. Having printed information about each group also facilitates learning. Clients who have concerns should be given written instructions to read at home that serve as memory aids. Booklets with illustrations are helpful.

If the client in the preceding example had diabetes for many years and was well informed about the disease, your approach would be different. Assess where the client has gaps in knowledge and provide appropriate instruction. The goal is to complement what the client already knows and facilitate learning where it is needed.

SOCIAL COGNITIVE VIEW OF LEARNING

In the 1960s and 1970s, a new view of learning emerged based on research by Albert Bandura, emeritus professor at Stanford University. His theory is an outgrowth of the behavioral theories of learning that he believed lacked a complete explanation for learning. He incorporated many contributions from cognitive theorists into what is now referred to as observational learning. Bandura believes that people are neither driven by inner forces nor automatically shaped by external forces; rather, they are creative, active participants in shaping their lives. In other words, people are proactive rather than reactive; they have some control over how they live their lives (Bandura, 1986, 2001). General principles that support the social cognitive view of learning follow (Ormrod, 2016; Slavin, 2015).

- People learn through a process of modeling and observing others' behavior.
- People learn vicariously from others' successes and failures.
- Learning may or may not result in an observable change of behavior.
- Cognition is important in learning such as awareness, attention, expectations, and retention.
- People can actively exert control over their actions and environments.

Bandura's theory of observational learning involves four phases and processes: *attention*, *retention*, *reproduction*, and *motivation* (Bandura, 1986; Olsen & Hergenhahn, 2013). The first phase, attention, occurs when the individual actively pays attention to the behavior of the model. Models that are similar to the observer in terms of age and gender—and who are respected, competent, powerful, and attractive—are attended to more often. Heroes in various age groups act as models for people of their age groups.

In the second phase, retention, the individual must have an opportunity to practice imitating the behavior of the model. For observation learning to be useful, what is learned must be remembered for future use. Learning can be stored verbally in words or in the form of mental pictures or images of modeled behaviors (imagined). When needed, learning is retrieved, rehearsed, and used long after it is observed.

In the third phase, reproduction, the individual tries to match the behavior of the model. This depends on the person's ability to actually perform what has been learned. Some individuals may be unable to perform or retain information because of age-related developmental immaturity, illness, or injury.

In the fourth phase, motivation, the individual finds satisfying reasons to imitate the behavior of the model. Motivation has two aspects: (1) the expectation that acting like the model in certain

situations will result in reinforcement similar to that received by the model; and (2) it serves to motivate a person to use (perform) what has been learned. A teacher's smile and verbal reinforcement are important here.

Bandura's social cognitive theory states that people learn from observing others in a social setting. By observing others, people acquire knowledge and skills, learn social rules and norms, and develop beliefs and attitudes. They observe which behaviors are useful, appropriate, and valued by society and which are not. Social cognitive theory posits that people learn most efficiently from observing others' behavior and less from the consequences of behavior (Skinner's view). In other words, this theory states that people learn primarily by observing the successes and failures of others (Santrock, 2014; Slavin, 2015). It is important to distinguish between learning by observation and the act of imitation. Learning may or may not include imitating the observed behavior.

Models and *modeling behavior* are important concepts. A model can be anything that conveys information; for example, a person, film, television program, picture, or instructions. Models convey messages about behavior. Bandura believes that behavior is the result of the bidirectional interaction of three classes of behavioral determinants: *cognitive and personal factors*, *environmental events*, and *behavior*. The interaction is reciprocal in that each operates interactively as determinants of the other. Behavior is a result of the interacting determinants and cannot be understood by viewing them in isolation. The strength of the influence of each determinant on behavior varies according to the situation. **Figure 3-4** illustrates this reciprocal relationship, which Bandura calls reciprocal determinism (Bandura, 1986; Olson & Hergenhahn, 2013).

FIGURE 3-4

Reciprocal determinism. Behavior is the result of the bidirectional interaction of three classes of behavioral determinants: cognitive and personal factors (P), environmental events (E), and behavior (B), called reciprocal determinism.
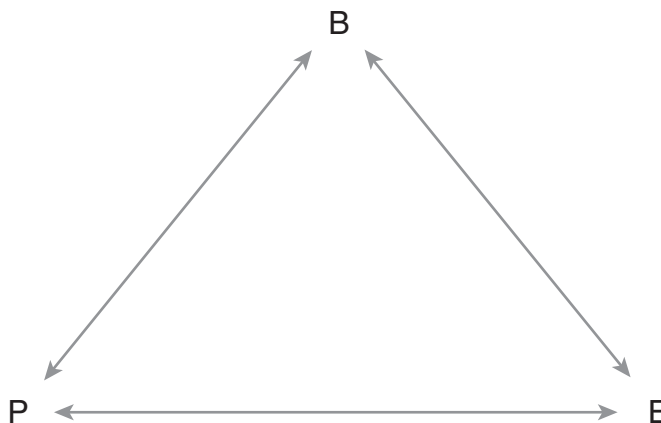
Data from Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

The nurse as educator wittingly or unwittingly teaches clients and health team members by their behavior. This example helps to explain some cognitive factors in social learning. Emily, a new nurse, observes Nurse X assisting a physician during a diagnostic procedure. Nurse X is poorly prepared to assist the physician and does not have knowledge of the procedure or the physician's requirements and needs. Consequently, both Nurse X and the physician are unhappy at the conclusion of the procedure. The next day Emily observes Nurse Y assist a physician with the same procedure. Nurse Y is prepared, organized, and familiar with the physician's requirements and needs. The outcome is better, and the physician thanks Nurse Y for her preparedness and efficiency. Later Emily seeks out her supervisor, and together they discuss both situations. They identify what was effective and what was ineffective behavior of each nurse's performance. In this example Emily observes both positive and negative modeling and is able to see the differences. Emily verbally rehearses her responsibilities with her supervisor. Six months later, Emily is assigned to assist a physician with the same diagnostic procedure. She mentally rehearses her role and responsibilities. The procedure goes smoothly, and the participants are satisfied. This shows how modeling can produce successful performance. From this example, the following components of social cognitive learning theory are illustrated (Bandura, 1986; Ormrod, 2016):

- Emily's learning was a mental activity; she learned by observing. She paid attention to what each nurse was doing and made a mental note of what was ineffective (Nurse X) and what was effective (Nurse Y). She learned by observing each nurse and mentally rehearsing effective behavior (*vicarious learning*).
- Although Emily did not have an opportunity to immediately imitate Nurse Y's behavior, her learning was verbal when she discussed her observations with her supervisor. Together they reviewed what she learned through observation.
- Emily had no opportunity to immediately imitate the desired assisting behavior; however, 6 months later she remembered what she learned and was able to imitate the behavior (*delayed modeling*).
- Emily was aware of how unhappy both Nurse X and the physician were at the conclusion of the procedure. Observing their unhappiness, Emily experienced vicarious punishment (*response–punishment contingency*) and did not want to experience the same outcome.
- Emily was aware of how pleased Nurse Y and the physician were at the conclusion of the procedure. Observing their satisfaction and the physician's compliments with her supervisor's positive input, Emily experienced vicarious reinforcement (*response–reinforcement contingency*), and she desired that outcome for herself.
- Emily felt confident and believed in her ability to successfully perform the behavior (*self-efficacy expectation*). Subsequently when she was in the assisting role again, she fulfilled her expectations of herself and rewarded herself with a mental pat on the back.

Implications for Health Education

Role modeling is a form of observational learning. Nurses learn by observing their professional colleagues. In the same way, clients learn by observing nurses. Clients observe nurses and other healthcare providers and regard them as experts. If they model good health practices, that behavior sends an important message to clients; the converse is also true. Nurses who are overweight or smoke have little credibility when it comes to teaching clients about weight reduction or smoking cessation. The old adage is true: what we do is a stronger message than what we say, regardless

of how sincerely we present the message. If nurses are to be effective educators, they must model good health practices and behaviors (Rush, Kee, & Rice, 2005; Spencer, 2007).

Bandura's modeling phases and processes are important when teaching clients by demonstrating a desired action and having them return the demonstration. By observing you performing, clients and health team members can mimic your performance while they are under your supervision. This gives you an opportunity to guide, correct, and provide positive reinforcement as indicated.

Table 3-1 summarizes the views of learning discussed in this chapter. Each view has advantages and disadvantages, depending on the type of intended learning and on the learner and teacher interaction. When selecting a view, ask yourself the following questions: What is the purpose of the learning? Who initiates the learning? Who evaluates whether or not the learning has been effective?

Educator responsibilities vary, depending on the learning view used. In each view the teacher's role is that of director (behaviorism); designer (gestaltism); programmer (information processing); or model (social cognitive). The main goal of the learner in each view is to change behavior (behaviorism); understand (gestaltism); register, retain, and recall information (information processing); and observe and imitate (social cognitive). Table **3-1** compares these concepts.

PRINCIPLES OF LEARNING

Principles are the foundation or general laws of teaching and learning derived from research based on consistently observed phenomena. Learning principles are formulations that are generally true and applicable to multiple learning situations (Ormrod, 2016). These principles, summarized in **Box 3-2**, are derived from informal research and feedback from more than 800 registered nurses over 15 years who were taught clinical teaching methods in a baccalaureate registered nurse program by authors Babcock and Miller (1994). These principles of learning are widely applicable to health education.

Focusing Intensifies Learning

Individuals vary in ways that help them learn. Some learners depend on eye contact with the teacher; they focus on the teacher's verbalizations and body language. Others make images in their mind of

TABLE 3-1

Views Regarding Thinking, Learning, Teacher, and Learner

Views of	Thinking	Learning	Teacher	Learner
Behaviorist	Covert trial and error	Change in behavior	Directs	Complies
Gestaltist	Knows, perceives	Understands, gains insight	Designs	Participates
Processor	Processes information	Registers, retains, recalls	Programs	Inputs, outputs
Social cognitivist	Observes, mentally processes	Attends, retains, performs	Models	Imitates

BOX 3-2

Principles of Learning

- Focusing
- Repetition
- Learner control
- Active participation
- Individual styles
- Organization
- Association
- Imitation

- Motivation
- Spacing
- Recency
- Primacy
- Arousal
- Accurate and prompt feedback
- Application
- Personal history

what is being presented. Kinesthetic learners are people who learn through the awareness of body position. Some learners write images on paper or write notes to stay actively involved.

While studying, some learners listen to music to help them concentrate. Others want minimal auditory and visual distractions. Some learners have rituals that help them focus. Examples of rituals include meditation, organizing materials, and preparing a snack. Most learners enhance their ability to retain and recall information by developing a pattern that provides for physical comfort, a heightened level of arousal, and a clear mind.

Repetition Enhances Learning

Repeating information and applying it in different situations and contexts helps to remember it. Sustained practice enforces learning. This is true for memorizing facts and mastering psychomotor skills.

Learner Control Increases Learning

Learners do better when they feel in control of the learning process, and they are more likely to choose learning methods that worked for them in the past. Past experience demonstrates that nurses are successful adult learners who can verbalize what they need to master new information and skills. Most nurses take responsibility for their learning and do better when educators acknowledge this in both actions and words. This same principle applies to learners of any age. Older learners generally need more time to absorb new information. They are successful when they are in control of both the pace and the increments of learning.

Active Participation Is Necessary for Learning

Learning is an active process. Most people find that the more they are able to involve themselves in learning, the more they are able to learn. Participation in learning means having input into the learning process, including the time, place, pace, and increments of learning.

Learning Styles Vary

Some learners find it easier to comprehend verbal discourse, while others comprehend visual cues more easily. Still others seek hands-on experience to grasp the meaning of concepts. Many find

that a combination of verbal, visual, auditory, and kinesthetic experiences is most effective. Be aware of your preferred learning style because it is the style you are most likely to use when you teach. Assess your clients' learning styles so you can plan an approach to enhance learning. The skill in facilitating learning is to find an effective match between the clients' learning styles and your teaching approach.

Organization Promotes Learning

Learners often highlight readings, summarize paragraphs, explain their assignments to others, and ask questions. These are ways of actively organizing learning materials. This personal intellectual activity makes the information meaningful and easier to retain. Methods of organization vary, but to be most effective, materials should be organized in a way that fits both the content and the learner. A cognitive task, such as learning historical facts, is facilitated by using chronology. Learning of psychomotor skills is enhanced by teaching from the simple to the complex. Affective learning frequently is best organized around the principle of low- to high-risk behaviors from the learner's point of view.

Association Is Necessary to Learning

To retain any new information or skill, learners must be able to associate the new learning with phenomena that are already within their repertoire of experience. Association provides relevance to learners.

Imitation Is a Method of Learning

Imitating is particularly useful for mastering psychomotor skills, but attitudes and beliefs can also be incorporated if learners observe a respected role model.

Motivation Strengthens Learning

It is easier for learners to grasp facts, learn new skills, and change attitudes when they anticipate gaining benefits from the effort. Past success and the expectation of future success are powerful motivating forces. Educators should perform a needs assessment to understand what motivates clients and use this knowledge to create an atmosphere that sustains motivation and builds confidence.

Spacing New Material Facilitates Learning

It is wiser for educators to present small amounts of new material incrementally rather than larger amounts at one time. Learners should be encouraged to read instructional materials to give them exposure to information over time so that they have a more thorough understanding. This also provides an opportunity to ask questions of the educators.

Recency Influences Retention

The more recently learners have been exposed to information or have practiced a skill, the greater the possibility that they will recall it correctly. Retention is the ability to repeat information or grasp or hold on to information or a skill.

Primacy Affects Retention

People tend to learn the first few items best; this concept is referred to as primacy. Learners pay more attention to and devote more energy to items presented first. The human mind is capable of retaining a limited number (five to seven) of new bits of information at one time. When these new bits of information have been associated with other more solidly retained memories, learners are better able to grasp and retain other sets of facts.

Arousal Influences Attention

Arousal is affected by novelty. The human mind is attracted to change and glitches in patterns. Other sources of stimuli besides novelty include sensory intensity, emotional arousal, and other sources of tension. A certain amount of tension enhances learners' ability to focus. This tension is caused by fear, anger, anxiety, curiosity, and amusement. When tense, a client's neurochemistry changes. Chemicals are released that improve circulation, provide sugar to the brain and muscles, and enhance visual acuity. Clients vary in how much tension is ideal for them. This is illustrated in **Figure 3-5**. For example, too much tension interferes with learning, whereas a moderate level of tension is motivating (Cassady & Johnson, 2002; Stephenson, 2006). With too much tension, clients may become immobilized or restless and engage in behavior that further obstructs learning.

FIGURE 3-5

Arousal and learning: A moderate amount of tension enhances learning. Too little tension fails to engage learner's attention. Too much tension interferes with learning.
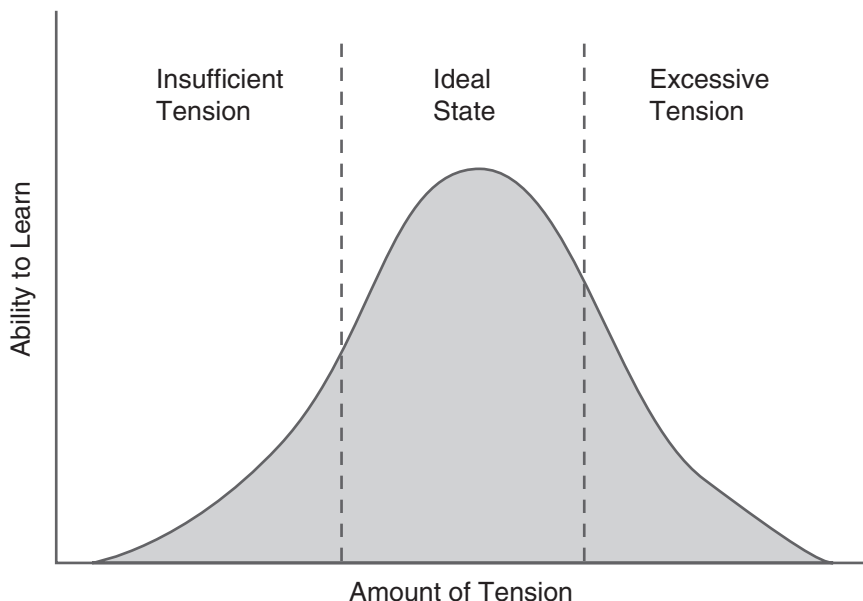
Fear of punishment, such as job loss, usually impedes learning and interferes with the ability to apply learning to new situations.

Accurate and Prompt Feedback Enhances Learning

Learners need to know how well they are meeting learning objectives. Self-assessments are helpful; consider how frequently newspapers and magazines publish self-scoring tests and questionnaires. Clients want to know how their attitudes and level of knowledge compare with others. Feedback is necessary for clients and educators to determine if learning occurred. Prompt feedback reinforces desired behaviors and gives clients feelings of satisfaction when they are successful. Even when correction is necessary, feedback can reduce tension because learners know what is learned and what is still to be mastered.

Application of New Learning in a Variety of Contexts Broadens the Generalization of That Learning

Application of knowledge helps to broaden and generalize learning. An example is practicing crutch walking in a lab setting and then applying the skill in actual practice settings, such as walking up and down steps. Exposure to a particular concept, attitude, or skill in varying situations assists learners to retain new material and develop the ability to apply the material in a wider variety of situations.

The Learner's Biologic, Psychologic, Sociologic, and Cultural Realities Shape the Learner's Perception of the Learning Experience

Health affects energy level and ability to concentrate. Self-esteem and previous experiences with learning affect the willingness to risk, tolerance for temporary failure, and expectations of success. If clients are at a developmental level in which memorization and concrete processing are necessary, educators must respect that. Nurses as educators need to listen and be observant of the signs that learners are handling all they can.

Societal norms and learners' previous experiences with healthcare institutions affect the ability to learn. Clients' attitudes toward learning, their beliefs about personal responsibility for health, and the learning climate are all influenced by their culture.

SUMMARY

This chapter examined prominent theories of learning as they relate to the teaching and learning process of the nurse–client relationship in the Miller–Stoeckel Client Education Model. The theories are **behaviorism** (stimulus–response and operant conditioning), **cognitivism** (gestalt and information processing), and **social cognitive theory**. With each theory, application was made to how nurses as educators could apply that information in a clinical setting when working with clients as learners. Selecting which theory works best for clients and what is taught is your job as the educator. The chapter concluded with a discussion of principles of learning that are broadly applicable in a wide variety of health education situations.

EXERCISES

Exercise I: Integrating Learning Theories and Principles

Purpose: Apply learning theories and principles in preparation for client education.
Directions: Divide into groups and choose which assignment your group will prepare.

Group Assignment A

What learning theories and principles would you apply in each of the following situations? Act out one of the following scenes.

1. You are going to teach home safety and accident prevention to an elderly client after hip replacement surgery before she goes home.
2. As a nurse working in the gynecology clinic, you are to teach breast self-examination to a group of women in the waiting room.
3. As a public health nurse, you are to teach a group of young parents at a day-care center about behavior modification using the propositions of behavioral theory. The objective is to translate the most important concepts into plain English and give practical examples.

Group Assignment B

You are a group of nurse entrepreneurs who have been granted an interview with a TV station program producer. Select two members to collaborate in playing the role of station program producer.

1. Your task is to talk the TV producer into buying your television program package. Prepare the following information:
    a. Identify the target audience. Who are the viewers? Are they in school? If so, which grade level? Are they at the work site? If so, which one? Why did you choose this audience?
    b. What population trends make your program feasible?
    c. Suggest how often your program should be shown. Daily? Monthly? What day? What hour? Provide your rationale.
    d. List the topics you would cover with your target audience.
    e. Identify the sponsors you would approach.
2. Place yourself in the role of the producer. Identify questions and concerns you have. Consider issues such as profit; market acceptability; risk; controversy; sensitivities of various cultural, ethnic, and age groups; and timeliness. Present these concerns to the nurse entrepreneurs.

Group Assignment C

Conduct the following activities on your regular television health program:

1. Your first guest is a self-styled fitness expert or nutritionist who is very popular but whose scientific base you question. Conduct the interview in a way that will promote critical thinking in your audience.
2. Create a commercial break in which you do the following:
    a. Market nurses as health educators, consultants, and care providers
    b. Advertise a health product or system with which you would like to be associated

3. Interview a nurse colleague about the changing trends in health care and what that means for the average citizen.

Exercise II: Compare and Contrast Learning Theories

Purpose: Examine behaviorism, cognitivism, and social cognitive theories.
Directions: Divide into small groups of four to five and discuss the theories of learning described in this chapter. Discuss the following questions:

1. How are the theories alike?
2. How are they different?
3. What is the difference between learning, teaching, and health education?
4. Do people think like computers?
5. How have computers influenced your way of thinking?

Exercise III: Reflecting on Self-Learning

Purpose: Reflect on how you learn.
Directions: Form dyads with someone in the class whom you have not worked with before. Take a few minutes and reflect individually on how you learn; then share with your partner. Listen to how he or she learns. Compare the ways your learning is alike and different.

Exercise IV: Information Processing and Memory

Purpose: Contemplate on the information processing model.
Directions: Form small groups of three or four; then do the following:

1. For 5 to 10 minutes, think alone about how you memorize lists and new information.
2. Discuss your thoughts and memory aids with others in your group and compare how your memorization strategies are alike and different.
3. Did you learn new strategies that will help you in the future?

Exercise V: Role Modeling

Purpose: Reflect on role models and role modeling.
Direction: Reflect on the following for 5 to 10 minutes; then form small groups and discuss your responses:

1. Who are your present role models in your social life? Who are your present role models in your role as a student?
2. What have you observed them doing that has helped you?
3. What have you observed them doing that you wish to avoid?
4. In what ways are you a role model to others?

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