



CHAPTER 5

Developmental Stages of the Learner

Susan B. Bastable

Gina M. Myers

CHAPTER HIGHLIGHTS

- Developmental Characteristics
- The Developmental Stages of Childhood
 - *Infancy (First 12 Months of Life) and Toddlerhood (1–2 Years of Age)*
 - *Early Childhood (3–5 Years of Age)*
 - *Middle and Late Childhood (6–11 Years of Age)*
 - *Adolescence (12–19 Years of Age)*
- The Developmental Stages of Adulthood
 - *Young Adulthood (20–40 Years of Age)*
 - *Middle-Aged Adulthood (41–64 Years of Age)*
 - *Older Adulthood (65 Years of Age and Older)*
- The Role of the Family in Patient Education
- State of the Evidence

KEY TERMS

pedagogy
object permanence
causality
precausal thinking
animistic thinking
egocentric causation
syllogistic reasoning

conservation
causal thinking
propositional reasoning
egocentrism
imaginary audience
personal fable
andragogy

dialectical thinking
ageism
gerogogy
crystallized intelligence
fluid intelligence

© Helaine Weide/Moment/Getty

OBJECTIVES

After completing this chapter, the reader will be able to

1. Identify the physical, cognitive, and psychosocial characteristics of learners that influence learning at various stages of growth and development.
2. Recognize the role of the nurse as educator in assessing stage-specific learner needs according to maturational levels.
3. Determine the role of the family in patient education.
4. Discuss appropriate teaching strategies effective for learners at different developmental stages.

When planning, designing, implementing, and evaluating an educational program, the nurse as educator must carefully consider the characteristics of learners with respect to their developmental stage in life. The more heterogeneous the target audience, the more complex the development of an educational program to meet the diverse needs of the population. Conversely, the more homogeneous the population of learners, the more straightforward the approach to teaching.

An individual's developmental stage significantly influences the ability to learn. Pedagogy, andragogy, and gerogogy are three different orientations to learning in childhood, young and middle adulthood, and older adulthood, respectively. To meet the health-related educational needs of learners, a developmental approach must be used. Three major stage-range factors associated with learner readiness—physical, cognitive, and psychosocial maturation—must be considered at each developmental period throughout the life cycle.

For many years, developmental psychologists have explored the various patterns of behavior characteristic of specific stages of development. Educators, more than ever before, acknowledge the effects of growth and development on an individual's willingness and ability to make use of instruction. This chapter has specific implications for nurses educating patients, staff, and students as teaching plans must address stage-specific competencies of the learner. In this chapter, therefore, the distinct life stages of learners are examined from the perspective of physical,

cognitive, and psychosocial development. Also, this chapter emphasizes the role of the nurse in assessment of stage-specific learner needs, the role of the family in the teaching–learning process, and the teaching strategies specific to meeting the needs of learners at various developmental stages of life.

A deliberate attempt has been made to minimize reference to age as the criterion for categorization of learners. Research on life-span development shows that chronological age per se is not the only predictor of learning ability (Crandell, Crandell, & Vander Zanden, 2012; Santrock, 2017). At any given age, one finds a wide variation in the acquisition of abilities related to the three fundamental domains of development: physical (biological), cognitive, and psychosocial (emotional–social) maturation. Age ranges, such as those included after each developmental stage heading in this chapter, are intended to be used as merely approximate age-strata reference points or general guidelines; they do not imply that chronological ages necessarily correspond perfectly to the various stages of development (Newman & Newman, 2015). Thus, the term *developmental stage* is the perspective used, based on the confirmation from research that human growth and development are sequential but not always specifically age related (Kail & Cavanaugh, 2015).

Recently, it has become clear that development is contextual. Even though the passage of time has traditionally been synonymous with chronological age, social and behavioral psychologists have begun to consider the many other changes occurring over time that affect

the dynamic relationship between a human's biological makeup and the environment. It is now understood that three important contextual influences act on and interact with the individual to produce development (Crandell et al., 2012; Santrock, 2017):

1. Normative age-graded influences are strongly related to chronological age and are similar for individuals in a specific age group, such as the biological processes of puberty and menopause and the sociocultural processes of transitioning to different levels of formal education or to retirement.
2. Normative history-graded influences are common to people in a certain age cohort or generation because they have been uniquely exposed to similar historical circumstances, such as the Vietnam War, the age of computers, or the terrorist events of September 11, 2001.
3. Normative life events are the unusual or unique circumstances, positive or negative, that are turning points in individuals' lives that cause them to change direction, such as a house fire, serious injury in an accident, winning the lottery, divorce, or an unexpected career opportunity.

Although this chapter focuses on the patient as the learner throughout the life span, nurses and nurse educators can apply the stage-specific characteristics of adulthood and the associated principles of adult learning presented herein to any audience of young, middle, or older adult learners, whether the nurse is instructing the public in the community, preparing students in a nursing education program, or providing continuing education to staff nurses or colleagues.

► Developmental Characteristics

As noted earlier, actual chronological age is only a relative indicator of someone's physical,

cognitive, and psychosocial stage of development. Unique as every individual is in the world, however, some typical developmental trends have been identified as milestones of normal progression through the life cycle. When dealing with the teaching–learning process, it is imperative to examine the developmental phases as individuals progress from infancy to senescence to fully appreciate the behavioral changes that occur in the cognitive, affective, and psychomotor domains.

As influential as age can be to learning readiness, it should never be examined in isolation. Growth and development interact with experiential background, physical and emotional health status, and personal motivation, as well as numerous environmental factors such as stress, the surrounding conditions, and the available support systems, to affect a person's ability and readiness to learn.

Musinski (1999) describes three phases of learning: dependence, independence, and interdependence. These passages of learning ability from childhood to adulthood, labeled by Covey (1990) as the “maturity continuum,” are identified as follows.

- Dependence is characteristic of the infant and young child, who are totally dependent on others for direction, support, and nurturance from a physical, emotional, and intellectual standpoint (unfortunately, some adults are considered stuck in this stage if they demonstrate manipulative behavior, do not listen, are insecure, or do not accept responsibility for their own actions).
- Independence occurs when a child develops the ability to physically, intellectually, and emotionally care for himself or herself and make his or her own choices, including taking responsibility for learning.
- Interdependence occurs when an individual has sufficiently advanced in maturity to achieve self-reliance, a sense of self-esteem, and the ability to give and receive, and when that individual demonstrates a level of respect for others. Full physical maturity does not guarantee simultaneous emotional and intellectual maturity.

If the nurse as educator is to encourage learners to take responsibility for their own health, learners must be recognized as an important source of data regarding their health status. Before any learning can occur, the nurse must assess how much knowledge the learner already possesses with respect to the topic to be taught. With the child as client, for example, new content should be introduced at appropriate stages of development and should build on the child's previous knowledge base and experiences.

The major question underlying the planning for educational experiences is: When is the most appropriate or best time to teach the learner? The answer is when the learner is ready. The *teachable moment*, as defined by Havighurst (1976), is that point in time when the learner is most receptive to a teaching situation. It is important to realize that the teachable moment need not be a spontaneous and unpredictable event. That is, the nurse as educator does not always have to wait for teachable moments to occur; the teacher can actively create these opportunities by taking an interest in and attending to the needs of the learner, as well as using the present situation to heighten the learner's awareness of the need for health behavior changes (Hinkle, 2014; Lawson & Flocke, 2009). When assessing readiness to learn, the nurse educator must determine not only whether an interpersonal relationship has been established, prerequisite knowledge and skills have been mastered, and the learner exhibits motivation, but also whether the plan for teaching matches the learner's developmental level (Crandell et al., 2012; Leifer & Hartston, 2013; Polan & Taylor, 2015; Santrock, 2017).

► The Developmental Stages of Childhood

Pedagogy is the art and science of helping children to learn (Knowles, 1990; Knowles, Holton, & Swanson, 2015). The different stages of childhood are divided according to what developmental theorists and educational psychologists

define as specific patterns of behavior seen in definitive phases of growth and development. One common attribute observed throughout all phases of childhood is that learning is subject centered. This section reviews the developmental characteristics in the four stages of childhood and the teaching strategies to be used in relation to the physical, cognitive, and psychosocial maturational levels indicative of learner readiness (**TABLE 5-1**).

Infancy (First 12 Months of Life) and Toddlerhood (1–2 Years of Age)

The field of growth and development is highly complex, and at no other time is physical, cognitive, and psychosocial maturation so changeable as during the very early years of childhood. Because of the dependency of members of this age group, the focus of instruction for health maintenance of children is geared toward the parents, who are considered the primary learners rather than the very young child (Callans, Bleiler, Flanagan, & Carroll, 2016; Crandell et al., 2012; Santrock, 2017). However, the older toddler should not be excluded from healthcare teaching and can participate to some extent in the education process.

Physical, Cognitive, and Psychosocial Development

At no other time in life is physical maturation so rapid as during the period of development from infancy to toddlerhood (London et al., 2017). Exploration of self and the environment becomes paramount and stimulates further physical development (Crandell et al., 2012; Kail & Cavanaugh, 2015). Patient education must focus on teaching the parents of very young children the importance of stimulation, nutrition, the practice of safety measures to prevent illness and injury, and health promotion (Polan & Taylor, 2015).

TABLE 5-1 Stage-Appropriate Teaching Strategies

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
Infancy–Toddlerhood			
Approximate age: Birth–2 years Cognitive stage: Sensorimotor Psychosocial stage: Trust vs. mistrust (Birth–12 mo) Autonomy vs. shame and doubt (1–2 yr)	Dependent on environment Needs security Explores self and environment Natural curiosity	Orient teaching to caregiver Use repetition and imitation of information Stimulate all senses Provide physical safety and emotional security Allow play and manipulation of objects	Welcome active involvement Forge alliances Encourage physical closeness Provide detailed information Answer questions and concerns Ask for information on child's strengths/limitations and likes/ dislikes
Early Childhood			
Approximate age: 3–5 years Cognitive stage: Preoperational Psychosocial stage: Initiative vs. guilt	Egocentric Thinking precausal, concrete, literal Believes illness self-caused and punitive Limited sense of time Fears bodily injury Cannot generalize Animistic thinking (objects possess life or human characteristics) Centration (focus is on one characteristic of an object) Separation anxiety Motivated by curiosity Active imagination, prone to fears Play is his/her work	Use warm, calm approach Build trust Use repetition of information Allow manipulation of objects and equipment Give care with explanation Reassure not to blame self Explain procedures simply and briefly Provide safe, secure environment Use positive reinforcement Encourage questions to reveal perceptions/feelings Use simple drawings and stories Use play therapy, with dolls and puppets Stimulate senses: Visual, auditory, tactile, motor	Welcome active involvement Forge alliances Encourage physical closeness Provide detailed information Answer questions and concerns Ask for information on child's strengths/limitations and likes/ dislikes

(continues)

TABLE 5-1 Stage-Appropriate Teaching Strategies *(continued)*

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
<p><i>Middle And Late Childhood</i></p> <p>Approximate age: 6–11 years</p> <p>Cognitive stage: Concrete operations</p> <p>Psychosocial stage: Industry vs. inferiority</p>	<p>More realistic and objective</p> <p>Understands cause and effect</p> <p>Deductive/Inductive reasoning</p> <p>Wants concrete information</p> <p>Able to compare objects and events</p> <p>Variable rates of physical growth</p> <p>Reasons syllogistically</p> <p>Understands seriousness and consequences of actions</p> <p>Subject-centered focus</p> <p>Immediate orientation</p>	<p>Encourage independence and active participation</p> <p>Be honest, allay fears</p> <p>Use logical explanation</p> <p>Allow time to ask questions</p> <p>Use analogies to make invisible processes real</p> <p>Establish role models</p> <p>Relate care to other children's experiences; compare procedures</p> <p>Use subject-centered focus</p> <p>Use play therapy</p> <p>Provide group activities</p> <p>Use diagrams, models, pictures, digital media, printed materials, and computer, tablet, or smartphone applications as adjuncts to various teaching methods</p>	<p>Welcome active involvement</p> <p>Forge alliances</p> <p>Encourage physical closeness</p> <p>Provide detailed information</p> <p>Answer questions and concerns</p> <p>Ask for information on child's strengths/limitations and likes/dislikes</p>

Adolescence

Approximate age:
12–19 years
Cognitive stage:
Formal operations
Psychosocial stage:
Identity vs. role confusion

Abstract, hypothetical thinking
Can build on past learning
Reasons by logic and understands scientific principles
Future orientation
Motivated by desire for social acceptance
Peer group important
Intense personal preoccupation, appearance extremely important (imaginary audience)
Feels invulnerable, invincible/immune to natural laws (personal fable)

Establish trust, authenticity
Know their agenda
Address fears/concerns about outcomes of illness
Identify control focus
Include in plan of care
Use peers for support and influence
Negotiate changes
Focus on details
Make information meaningful to life
Ensure confidentiality and privacy
Arrange peer group sessions in person or virtually (e.g., blogs, social networking, podcasts, online videos)
Use audiovisuals, role play, contracts, reading materials
Provide for experimentation and flexibility

Explore emotional and financial support
Determine goals and expectations
Assess stress levels
Respect values and norms
Determine role responsibilities and relationships
Engage in 1:1 teaching without parents present, but with adolescent's permission inform family of content covered

Young Adulthood

Approximate age:
20–40 years
Cognitive stage:
Formal operations
Psychosocial stage:
Intimacy vs. isolation

Autonomous
Self-directed
Uses personal experiences to enhance or interfere with learning
Intrinsic motivation
Able to analyze critically
Makes decisions about personal, occupational, and social roles
Competency-based learner

Use problem-centered focus
Draw on meaningful experiences
Focus on immediacy of application
Encourage active participation
Allow to set own pace, be self-directed
Organize material
Recognize social role
Apply new knowledge through role playing and hands-on practice

Explore emotional, financial, and physical support system
Assess motivational level for involvement
Identify potential obstacles and stressors

(continues)

TABLE 5-1 Stage-Appropriate Teaching Strategies (continued)

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
Middle-Aged Adulthood			
Approximate age: 41–64 years Cognitive stage: Formal operations Psychosocial stage: Generativity vs. self-absorption and stagnation	Sense of self well developed Concerned with physical changes At peak in career Explores alternative lifestyles Reflects on contributions to family and society Reexamines goals and values Questions achievements and successes Has confidence in abilities Desires to modify unsatisfactory aspects of life	Focus on maintaining independence and reestablishing normal life patterns Assess positive and negative past experiences with learning Assess potential sources of stress caused by midlife crisis issues Provide information to coincide with life concerns and problems	Explore emotional, financial, and physical support system Assess motivational level for involvement Identify potential obstacles and stressors
Older Adulthood			
Approximate age: 65 years and over Cognitive stage: Formal operations Psychosocial stage: Ego integrity vs. despair	Cognitive changes Decreased ability to think abstractly, process information Decreased short-term memory Increased reaction time Increased test anxiety Stimulus persistence (afterimage) Focuses on past life experiences	Use concrete examples Build on past life experiences Make information relevant and meaningful Present one concept at a time Allow time for processing/response (slow pace) Use repetition and reinforcement of information Avoid written exams Use verbal exchange and coaching Establish retrieval plan (use one or several clues) Encourage active involvement Keep explanations brief Use analogies to illustrate abstract information	Involve principal caregivers Encourage participation Provide resources for support (respite care) Assess coping mechanisms Provide written instructions for reinforcement Provide anticipatory problem solving (what happens if . . .)

	<p>Sensory/motor deficits</p> <ul style="list-style-type: none"> Auditory changes Hearing loss, especially high-pitched tones, consonants (S, Z, T, F, and G), and rapid speech Visual changes Farsighted (needs glasses to read) Lenses become opaque (glare problem) Smaller pupil size (decreased visual adaptation to darkness) Decreased peripheral perception Yellowing of lenses (distorts low-tone colors: blue, green, violet) Distorted depth perception Fatigue/decreased energy levels Pathophysiology (chronic illness) 	<ul style="list-style-type: none"> Speak slowly, distinctly Use low-pitched tones Avoid shouting Use visual aids to supplement verbal instruction Avoid glares, use soft white light Provide sufficient light Use white backgrounds and black print Use large letters and well-spaced print Avoid color coding with pastel blues, greens, purples, and yellows Increase safety precautions/provide safe environment Ensure accessibility and fit of prostheses (i.e., glasses, hearing aid) Keep sessions short Provide for frequent rest periods Allow for extra time to perform Establish realistic short-term goals 	
	<p>Psychosocial changes</p> <ul style="list-style-type: none"> Decreased risk taking Selective learning Intimidated by formal learning 	<ul style="list-style-type: none"> Give time to reminisce Identify and present pertinent material Use informal teaching sessions Demonstrate relevance of information to daily life Assess resources Make learning positive Identify past positive experiences Integrate new behaviors with formerly established ones 	

Piaget (1951, 1952, 1976)—a noted expert in defining the key milestones in the cognitive development of children—labels the stage of infancy to toddlerhood as the *sensorimotor period*. This period refers to the coordination and integration of motor activities with sensory perceptions. As children mature from infancy to toddlerhood, learning is enhanced through sensory experiences and through movement and manipulation of objects in the environment. Toward the end of the second year of life, the very young child begins to develop **object permanence**—that is, recognition that objects and events exist even when they cannot be seen, heard, or touched (Santrock, 2017). Motor activities promote toddlers’ understanding of the world and an awareness of themselves as well as others’ reactions in response to their own actions. Encouraging parents to create a safe environment can allow their child to develop with a decreased risk for injury.

The toddler has the rudimentary capacity for basic reasoning, understands object permanence, has the beginnings of memory, and begins to develop an elementary concept of **causality**, which refers to the ability to grasp a cause-and-effect relationship between two paired, successive events (Crandell et al., 2012). With limited ability to recall past happenings or anticipate future events, the toddler is oriented primarily to the here and now and has little tolerance for delayed gratification. The child who has lived with strict routines and plenty of structure has more of a grasp of time than the child who lives in an unstructured environment.

Children at this stage have short attention spans, are easily distracted, are egocentric in their thinking, and are not amenable to correction of their own ideas. Unquestionably, they believe their own perceptions to be reality. Asking questions is the hallmark of this age group, and curiosity abounds as they explore places and things. They can respond to simple, step-by-step commands and obey such directives as “give Grandpa a kiss” or “go get your teddy bear” (Santrock, 2017).

Language skills are acquired rapidly during this period, and parents should be encouraged

to foster this aspect of development by talking with and listening to their child. As they progress through this phase, children begin to engage in fantasizing and make-believe play. Because they are unable to distinguish fact from fiction and have limited cognitive capacity for understanding cause and effect, the disruption in their routine during illness or hospitalizations, along with the need to separate from parents, is very stressful for the toddler (London et al., 2017). Routines give these children a sense of security, and they gravitate toward ritualistic ceremonial-like exercises when carrying out activities of daily living. Separation anxiety is also characteristic of this stage of development and is particularly apparent when children feel insecure in an unfamiliar environment. This anxiety is often compounded when they are subjected to medical procedures and other healthcare interventions performed by people who are strangers to them (London et al., 2017).

According to Erikson (1963), the noted authority on psychosocial development, the period of infancy is one of *trust versus mistrust*. During this time, children must work through their first major dilemma of developing a sense of trust with their primary caretaker. As the infant matures into toddlerhood, *autonomy versus shame and doubt* emerges as the central issue. During this period of psychosocial growth, toddlers must learn to balance feelings of love and hate and learn to cooperate and control willful desires (**TABLE 5-2**).

Children progress sequentially through accomplishing the tasks of developing basic trust in their environment to reaching increasing levels of independence and self-assertion. Their newly discovered sense of independence often is expressed by demonstrations of negativism. Children may have difficulty in making up their minds, and, aggravated by personal and external limits, they may express their level of frustration and feelings of ambivalence in words and behaviors, such as by engaging in temper tantrums to release tensions (Falvo, 2011). With peers, play is a parallel activity, and it is not unusual for them to end up in tears because

TABLE 5-2 Erikson's Nine Stages of Psychosocial Development

Developmental Stages	Psychosocial Stages	Strengths
Infancy	Trust versus mistrust	Hope
Toddlerhood	Autonomy versus shame and doubt	Will
Early childhood	Initiative versus guilt	Purpose
Middle and late childhood	Industry versus inferiority	Competence
Adolescence	Identity versus role confusion	Fidelity
Young adulthood	Intimacy versus isolation	Love
Middle-aged adulthood	Generativity versus self-absorption and stagnation	Care
Older adulthood	Ego integrity versus despair	Wisdom
Very old age (late 80s and beyond)	Hope and faith versus despair	Wisdom and transcendence

Data from Ahroni, J. H. (1996). Strategies for teaching elders from a human development perspective. *Diabetes Educator*, 22(1), 47–52; Crandell, T. L., Crandell, C. H., & Vander Zanden, J. W. (2012). *Human development* (10th ed.). New York, NY: McGraw-Hill.

they have not yet learned about tact, fairness, or rules of sharing (Miller & Stoeckel, 2016; Polan & Taylor, 2015).

Teaching Strategies

Patient education for infancy through toddlerhood need not be illness related. Usually less time is devoted to teaching parents about illness care, and considerably more time is spent teaching aspects of normal development, safety, health promotion, and disease prevention. When the child becomes ill or injured, the first priority for teaching interventions would be to assess the parents' and child's anxiety levels and to help them cope with their feelings of stress related to uncertainty and guilt about the cause of the illness or injury. Anxiety on the part of

the child and parents can adversely affect their readiness to learn. See Chapter 4 on factors influencing readiness to learn.

Although teaching activities primarily are directed to the main caregiver(s), children at this developmental stage in life have a great capacity for learning. Toddlers are capable of some degree of understanding procedures and interventions that they may experience. Because of the young child's natural tendency to be intimidated by unfamiliar people, it is imperative that a primary nurse is assigned and time is taken to establish a relationship with the child and parents. This approach not only provides consistency in the teaching-learning process but also helps to reduce the child's fear of strangers. Parents should be present whenever possible during formal and informal teaching and learning activities to allay

stress, which could be compounded by separation anxiety (London et al., 2017).

Ideally, health teaching should take place in an environment familiar to the child, such as the home or daycare center. When the child is hospitalized, the environment selected for teaching and learning sessions should be as safe and secure as possible, such as the child's bed or the playroom, to increase the child's sense of feeling protected.

Movement is an important mechanism by which toddlers communicate. Immobility resulting from illness, hospital confinement, or disability tends to increase children's anxiety by restricting activity. Nursing interventions that promote children's use of gross motor abilities and that stimulate their visual, auditory, and tactile senses should be chosen whenever possible.

Developing rapport with children through simple teaching helps to elicit their cooperation and active involvement. The approach to children should be warm, honest, calm, accepting, and matter of fact. A smile, a warm tone of voice, a gesture of encouragement, or a word of praise goes a long way in attracting children's attention and helping them adjust to new circumstances. Fundamental to the child's response is how the parents respond to healthcare personnel and medical interventions.

The following teaching strategies are suggested to convey information to members of this age group. These strategies feed into children's natural tendency for play and their need for active participation and sensory experiences.

For Short-Term Learning

- Read simple stories from books with lots of pictures.
- Use dolls and puppets to act out feelings and behaviors.
- Use simple audiotapes with music and videotapes with cartoon characters.
- Role play to bring the child's imagination closer to reality.
- Give simple, concrete, nonthreatening explanations to accompany visual and tactile experiences.

- Perform procedures on a teddy bear or doll first to help the child anticipate what an experience will be like.
- Allow the child something to do—squeeze your hand, hold a Band-Aid, sing a song, cry if it hurts—to channel his or her response to an unpleasant experience.
- Keep teaching sessions brief (no longer than about 5 minutes each) because of the child's short attention span.
- Cluster teaching sessions close together so that children can remember what they learned from one instructional encounter to another.
- Avoid analogies and explain things in straightforward and simple terms because children take their world literally and concretely.
- Individualize the pace of teaching according to the child's responses and level of attention.

For Long-Term Learning

- Focus on rituals, imitation, and repetition of information in the form of words and actions to hold the child's attention. For example, practice washing hands before and after eating and toileting.
- Use reinforcement as an opportunity for children to achieve permanence of learning through practice.
- Employ the teaching methods of gaming and modeling as a means by which children can learn about the world and test their ideas over time.
- Encourage parents to act as role models, because their values and beliefs serve to reinforce healthy behaviors and significantly influence the child's development of attitudes and behaviors.

Early Childhood (3–5 Years of Age)

Children in the preschool years continue with development of skills learned in the earlier years of growth. Their sense of identity becomes clearer, and their world expands to encompass

involvement with others external to the family unit. Children in this developmental category acquire new behaviors that give them more independence from their parents and allow them to care for themselves more autonomously. Learning during this developmental period occurs through interactions with others and through mimicking or modeling the behaviors of playmates and adults (Crandell et al., 2012; Santrock, 2017).

Physical, Cognitive, and Psychosocial Development

The physical maturation during early childhood is an extension of the child's prior growth. Fine and gross motor skills become increasingly more refined and coordinated so that children can carry out activities of daily living with greater independence (Crandell et al., 2012; Kail & Cavanaugh, 2015; Santrock, 2017). Although their efforts are more coordinated, supervision of activities is still required because they lack judgment in carrying out the skills they have developed.

The early childhood stage of cognitive development is labeled by Piaget (1951, 1952, 1976) as the *preoperational period*. This stage, which emphasizes the child's inability to think things through logically without acting out the situation, is the transitional period when the child starts to use symbols (letters and numbers) to represent something (Crandell et al., 2012; Santrock, 2017; Snowman & McCown, 2015).

Children in the preschool years begin to develop the capacity to recall past experiences and anticipate future events. They can classify objects into groups and categories but have only a vague understanding of their relationships. The young child continues to be egocentric and is essentially unaware of others' thoughts or the existence of others' points of view. Thinking remains literal and concrete—they believe what is seen and heard. **Precausal thinking** allows young children to understand that people can make things happen, but they are unaware of causation as the result of invisible physical and

mechanical forces. They often believe that they can influence natural phenomena, and their beliefs reflect **animistic thinking**—the tendency to endow inanimate objects with life and consciousness (Pidgeon, 1977; Santrock, 2017).

Preschool children are very curious, can think intuitively, and pose questions about almost anything. They want to know the reasons, cause, and purpose for everything (the why), but are unconcerned at this point with the process (the how). Fantasy and reality are not well differentiated. Children in this cognitive stage mix fact and fiction, tend to generalize, think magically, develop imaginary playmates, and believe they can control events with their thoughts. At the same time, they do possess self-awareness and realize that they are vulnerable to outside influences (Crandell et al., 2012; Santrock, 2017).

The young child also continues to have a limited sense of time. For children of this age, being made to wait 15 minutes before they can do something can feel like an eternity. They do, however, understand the timing of familiar events in their daily lives, such as when breakfast or dinner is eaten and when they can play or watch their favorite television program. As they begin to understand and appreciate the world around them, their attention span (ability to focus) begins to lengthen such that they can usually remain quiet long enough to listen to a song or hear a short story read (Santrock, 2017).

In the preschool stage, children begin to develop sexual identity and curiosity, an interest that may cause considerable discomfort for their parents. Cognitive understanding of their bodies related to structure, function, health, and illness becomes more specific and differentiated. They can name external body parts but have only an ill-defined concept of the location of internal organs and the specific function of body parts (Raven, 2016).

Explanations of the purpose and reasons for a procedure remain beyond the young child's level of reasoning, so any explanations must be kept very simple and matter of fact (Pidgeon, 1985). Children at this stage have a fear of body

mutilation and pain, which not only stems from their lack of understanding of the body but also is compounded by their active imagination. Their ideas regarding illness also are primitive with respect to cause and effect; illness and hospitalization are thought to be a punishment for something they did wrong, either through omission or commission (London et al., 2017). Children's attribution of the cause of illness to the consequences of their own transgressions is known as **egocentric causation** (Polan & Taylor, 2015; Richmond & Kotelchuck, 1984).

Erikson (1963) has labeled the psychosocial maturation level in early childhood as the period of *initiative versus guilt*. Children take on tasks for the sake of being involved and on the move (Table 5-2). Excess energy and a desire to dominate may lead to frustration and anger on their part. They show evidence of expanding imagination and creativity, are impulsive in their actions, and are curious about almost everything they see and do. Their growing imagination can lead to many fears—of separation, disapproval, pain, punishment, and aggression from others. Loss of body integrity is the preschool child's greatest threat, which significantly affects his or her willingness to interact with healthcare personnel (Poster, 1983; Vulcan, 1984).

In this phase of development, children begin interacting with playmates rather than just playing alongside one another. Appropriate social behaviors demand that they learn to wait for others, give others a turn, and recognize the needs of others. Play in the mind of a child is equivalent to the work performed by adults. Play can be as equally productive as adult work and is a means for self-education about the physical and social world (Ormrod, 2012). It helps the child act out feelings and experiences to master fears, develop role skills, and express joys, sorrows, and hostilities. Through play, children in the preschool years also begin to share ideas and imitate parents of the same sex. Role playing is typical of this age as the child attempts to learn the responsibilities of family members and others in society (Santrock, 2017).

Teaching Strategies

The nurse's interactions with preschool children and their parents are often sporadic, usually occurring during occasional well-child visits to the pediatrician's office or when minor medical problems arise. During these interactions, the nurse should take every opportunity to teach parents about health promotion and disease prevention measures, to provide guidance regarding normal growth and development, and to offer instruction about medical recommendations related to illness or disability. Parents can be a great asset to the nurse in working with children in this developmental phase, and they should be included in all aspects of the educational plan and the actual teaching experience. Parents can serve as the primary resource to answer questions about children's disabilities, their idiosyncrasies, and their favorite toys—all of which may affect their ability to learn (Bedells & Bevan, 2016; Hussey & Hirsh, 1983).

Children's fear of pain and bodily harm is uppermost in their minds, whether they are well or ill. Because young children have fantasies and active imaginations, it is most important for the nurse to reassure them and allow them to express their fears openly (Heiney, 1991). Nurses need to choose their words carefully when describing procedures and interventions and keep explanations simple (Miller & Stoeckel, 2016). Preschool children are familiar with many words, but using terms such as *cut* and *knife* is frightening to them. Instead, nurses should use less threatening words such as *fix*, *sew*, and *cover up the hole*. *Band-Aids* is a much more understandable term than *dressings*, and bandages are often thought by children to have magical healing powers (Miller & Stoeckel, 2016).

Although still dependent on family, the young child has begun to have increasing contact with the outside world and is usually able to interact more comfortably with others. Nevertheless, significant adults in a child's life should be included as participants during teaching sessions. They can provide support to the child,

substitute as the teacher if their child is reluctant to interact with the nurse, and reinforce teaching at a later point in time. The primary caretakers, usually the mother and father, are the recipients of most of the nurse's teaching efforts. They are the learners who will assist the child in achieving desired health outcomes (Callans et al., 2016; Kaakinen, Gedaly-Duff, Coehlo, & Hanson, 2010; Whitener, Cox, & Maglich, 1998).

The following specific teaching strategies are recommended.

For Short-Term Learning

- Provide physical and visual stimuli because language ability is still limited, both for expressing ideas and for comprehending verbal instructions.
- Keep teaching sessions short (no more than 15 minutes) and scheduled sequentially at close intervals so that information is not forgotten.
- Relate information needs to activities and experiences familiar to the child. For example, ask the child to pretend to blow out candles on a birthday cake to practice deep breathing.
- Encourage the child to participate in selecting between a limited number of teaching-learning options, such as playing with dolls or reading a story, which promotes active involvement and helps to establish nurse-client rapport.
- Arrange small-group sessions with peers to make teaching less threatening and more fun.
- Give praise and approval, through both verbal expressions and nonverbal gestures, which are real motivators for learning.
- Give tangible rewards, such as badges or small toys, immediately following a successful learning experience to encourage the mastery of cognitive and psychomotor skills.
- Allow the child to manipulate equipment and play with replicas or dolls to learn about body parts. Special kidney dolls, ostomy dolls with stomas, or orthopedic dolls with splints and tractions provide opportunities for hands-on experience.

- Use storybooks to emphasize the humanity of healthcare personnel; to depict relationships between the child, parents, and others; and to help the child identify with certain situations.

For Long-Term Learning

- Enlist the help of parents, who can play a vital role in modeling a variety of healthy habits, such as practicing safety measures and eating a balanced diet; offer them access to support and follow-up as the need arises.
- Reinforce positive health behaviors and the acquisition of specific skills.

Middle and Late Childhood (6–11 Years of Age)

In middle and late childhood, children have progressed in their physical, cognitive, and psychosocial skills to the point where most begin formal training in structured school systems. They approach learning with enthusiastic anticipation, and their minds are open to new and varied ideas.

Children at this developmental level are motivated to learn because of their natural curiosity and their desire to understand more about themselves, their bodies, their world, and the influence that different things in the world have on them (Whitener et al., 1998). This stage is a period of great change for them, when attitudes, values, and perceptions of themselves, their society, and the world are shaped and expanded. Visions of their own environment and the cultures of others take on more depth and breadth (Santrock, 2017).

Physical, Cognitive, and Psychosocial Development

The gross- and fine-motor abilities of school-aged children become increasingly more coordinated so that they have the ability to control their movements with much greater dexterity than ever

before. Involvement in all kinds of curricular and extracurricular activities helps them to fine tune their psychomotor skills. Physical growth during this phase is highly variable, with the rate of development differing from child to child. Toward the end of this developmental period, girls more than boys on average begin to experience prepubescent bodily changes and tend to exceed the boys in physical maturation. Growth charts, which monitor the rate of growth, are a more sensitive indicator of health or disability than actual size (Crandell et al., 2012; Santrock, 2017).

Piaget (1951, 1952, 1976) labeled the cognitive development in middle and late childhood as the period of *concrete operations*. During this time, logical, rational thought processes and the ability to reason inductively and deductively develop. Children in this stage can think more objectively, are willing to listen to others, and selectively use questioning to find answers to the unknown. At this stage, they begin to use **sylogistic reasoning**—that is, they can consider two premises and draw a logical conclusion from them (Bara, Bucciarelli, & Johnson-Laird, 1995; Elkind, 1984; Steegen & De Neys, 2012). For example, they comprehend that mammals are warm blooded and whales are mammals, so whales must be warm blooded.

Also, children in this age group are intellectually able to understand cause and effect in a concrete way. Concepts such as **conservation**, which is the ability to recognize that the properties of an object stay the same even though its appearance and position may change, are beginning to be mastered. For example, they realize that a certain quantity of liquid is the same amount whether it is poured into a tall, thin glass or into a short, squat one (Snowman & McCown, 2015). Fiction and fantasy are separate from fact and reality. The skills of memory, decision making, insight, and problem solving are all more fully developed (Protheroe, 2007).

Children in this developmental phase can engage in systematic thought through inductive reasoning. They have the ability to classify objects and systems, express concrete ideas about relationships and people, and carry out mathematical operations. Also, they begin to understand

and use sarcasm as well as to employ well-developed language skills for telling jokes, conveying complex stories, and communicating increasingly more sophisticated thoughts (Snowman & McCown, 2015).

Nevertheless, thinking remains quite literal, with only a vague understanding of abstractions. Early in this phase, children are reluctant to exchange magical thinking for reality thinking. They cling to cherished beliefs, such as the existence of Santa Claus or the tooth fairy, for the fun and excitement that the fantasy provides them, even when they have information that proves contrary to their beliefs.

Children passing through elementary and middle schools have developed the ability to concentrate for extended periods, can tolerate delayed gratification, are responsible for independently carrying out activities of daily living, have a good understanding of the environment around them, and can generalize from experience (Crandell et al., 2012). They understand time, can predict time intervals, are oriented to the past and present, have some grasp and interest in the future, and have a vague appreciation for how immediate actions can have implications over the course of time (Kail & Cavanaugh, 2015). Special interests in topics of their choice begin to emerge, and they can pursue subjects and activities with devotion to increase their talents in selected areas.

Children at this cognitive stage can make decisions and act in accordance with how events are interpreted, but they understand only to a limited extent the seriousness or consequences of their choices. Children in the early period of this developmental phase know the functions and names of many common body parts, whereas older children have a more specific knowledge of anatomy and can differentiate between external and internal organs with a beginning understanding of their complex functions (Raven, 2016).

As part of the shift from precausal thinking to **causal thinking**, the child begins to incorporate the idea that illness is related to cause and effect and can recognize that germs create disease. Illness is thought of in terms of social consequences and role alterations, such as the

realization that they will miss school and outside activities, people will feel sorry for them, and they will be unable to maintain their usual routines (Banks, 1990; Koopman, Baars, Chaplin, & Zwinderman, 2004).

Marin (2010) found that concepts of illness in children vary depending on socioeconomic status (SES) and ethnicity, although she found no differences in their thinking based on gender. Children from lower SES levels and minority backgrounds had a less sophisticated understanding of the causes of illness compared with those children from higher SES levels and those belonging to the majority population. She suggested that this may be a result of educational, cultural, and language differences and that healthcare professionals should consider a child's ethnicity and SES when communicating symptoms and causes of illness based on cultural health beliefs and practices.

Also, research indicates that systematic differences exist in children's reasoning skills with respect to understanding body functioning and the cause of illness resulting from their experiences with illness. Children suffering from chronic diseases have been found to have more sophisticated conceptualization of illness causality and body functioning than do their healthy peers. Piaget (1976) postulated that experience with a phenomenon catalyzes a better understanding of it.

Conversely, the stress and anxiety resulting from having to live with a chronic illness or disability can interfere with a child's general cognitive performance. Chronically ill children have a less refined understanding of the physical world than healthy children do, and the former often are unable to generalize what they learned about a specific illness to a broader understanding of illness causality (Perrin, Sayer, & Willett, 1991). Thus, illness may act as an intrusive factor in overall cognitive development (Bell, Bayliss, Glauert, Harrison, & Ohan, 2016).

Erikson (1963) characterized school-aged children's psychosocial stage of life as *industry versus inferiority*. During this period, children begin to gain an awareness of their unique talents and the special qualities that distinguish

them from one another (Table 5-2). They begin to establish their self-concept as members of a social group larger than their own nuclear family and start to compare their own family's values with those of the outside world.

The school environment for children of this age facilitates their development of a sense of responsibility and reliability. With less dependency on family, they extend their intimacy to include special friends and social groups (Newman & Newman, 2015; Santrock, 2017). Relationships with peers and adults external to the home environment become important influences in their development of self-esteem and their susceptibility to social forces outside the family unit. School-aged children fear failure and being left out of groups. They worry about their inabilities and become self-critical as they compare their own accomplishments to those of their peers. They also fear illness and disability that could significantly disrupt their academic progress, interfere with social contacts, decrease their independence, and result in loss of control over body functioning.

Teaching Strategies

It is important to follow sound educational principles with the child and family, such as identifying individual learning styles, determining readiness to learn, and accommodating special learning needs and abilities to achieve positive health outcomes. Given their increased ability to comprehend information and their desire for active involvement and control of their lives, it is very important to include school-aged children in patient education efforts as these "hands-on" experiences are important sources of learning (Hayes, 2015). The nurse in the role as educator should explain illness, treatment plans, and procedures in simple, logical terms in accordance with the child's level of understanding and reasoning. Although children at this stage of development can think logically, their ability to engage in abstract thought remains limited. Therefore, teaching should be presented in concrete terms with step-by-step instructions (Pidgeon, 1985; Whitener et al., 1998). It

is imperative that the nurse observe children's reactions and listen to their verbal feedback to confirm that information shared has not been misinterpreted or confused.

To the extent feasible, parents should be informed of what their child is being taught. Teaching parents directly is encouraged so that they may be involved in fostering their child's independence, providing emotional support and physical assistance, and giving guidance regarding the correct techniques or regimens in self-care management. Siblings and peers also should be considered as sources of support. In attempting to master self-care skills, children thrive on praise from others who are important in their lives as rewards for their accomplishments and successes (Hussey & Hirsh, 1983; Santrock, 2017).

Education for health promotion and health maintenance is most likely to occur in the school system through the school nurse, but the parents as well as the nurse outside the school setting should be told which content is being addressed. Information then can be reinforced and expanded when in contact with the child in other care settings. Numerous opportunities for nurses to teach the individual child or groups of children about health promotion and disease and injury prevention are available in schools, physicians' offices, community centers, outpatient clinics, or hospitals. Health education for children of this age can be very fragmented because of the many encounters they have with nurses in a variety of settings (Edelman, Mandle, & Kudzma, 2013).

The school nurse is in an excellent position to coordinate the efforts of all other providers to avoid duplication of teaching content or the giving of conflicting information as well as to provide reinforcement of learning. According to *Healthy People 2020* (U.S. Department of Health and Human Services [USDHHS], 2014), health promotion regarding healthy eating and weight status, exercise, sleep, and prevention of injuries, as well as avoidance of tobacco, alcohol, and drug use, are just a few examples of objectives intended to improve the health of American

children. The school nurse can play a vital role in providing education to the school-aged child to meet these goals (American Academy of Pediatrics Council on School Health, 2016). In support of this teaching-learning process, *Healthy People 2020* has introduced the topic area "Early and Middle Childhood," which recommends providing formal health education in the school setting (USDHHS, 2014). The school nurse is afforded the opportunity to educate children not only in a group when teaching a class but also on a one-to-one basis when encountering an individual child in the office for a certain problem or need.

The specific conditions that may come to the attention of the nurse in caring for children at this phase of development include problems such as behavioral disorders, hyperactivity, learning disorders, obesity, diabetes, asthma, and enuresis. Extensive teaching may be needed to help children and parents understand a condition particularly related to them and learn how to overcome or deal with it (Edelman et al., 2013).

The need to sustain or bolster their self-image, self-concept, and self-esteem requires that children be invited to participate, to the extent possible, in planning for and carrying out learning activities (Snowman & McCown, 2015). For young children receiving an x-ray or other imaging procedure, for example, it would be beneficial to have them initially simulate the experience by positioning a doll or stuffed animal under the machine as the technician explains the procedure. This strategy allows them to participate and can decrease their fear. Because of children's fears of falling behind in school, being separated from peer groups, and being left out of social activities, teaching must be geared toward fostering normal development despite any limitations that may be imposed by illness or disability (Falvo, 2011; Leifer & Hartston, 2013).

Children in middle and late childhood are used to the structured, direct, and formal learning in the school environment; consequently, they are receptive to a similar teaching-learning approach when hospitalized or confined at home. The following teaching strategies are

suggested when caring for children in this developmental stage of life (Edleman et al., 2013; Falvo, 2011; Hayes, 2015; Leifer & Hartston, 2013; Snowman & McCown, 2015).

For Short-Term Learning

- Allow school-aged children to take responsibility for their own health care because they are not only willing but also capable of manipulating equipment with accuracy. Because of their adeptness in relation to manual dexterity, mathematical operations, and logical thought processes, they can be taught, for example, to apply their own splint or use an asthma inhaler as prescribed.
- Teaching sessions can be extended to last up to 30 minutes each because the increased cognitive abilities of school-aged children make possible the attention to and the retention of information. However, lessons should be spread apart to allow for comprehension of large amounts of content and to provide opportunity for the practice of newly acquired skills between sessions.
- Use diagrams, models, pictures, digital media, printed materials, and computer, tablet or smartphone applications as adjuncts to various teaching methods because the increased facility these children have with language (both spoken and written) and mathematical concepts allows them to work with more complex instructional tools.
- Choose audiovisual and printed materials that show peers undergoing similar procedures or facing similar situations.
- Clarify any scientific terminology and medical jargon used.
- Use analogies as an effective means of providing information in meaningful terms, such as “Having a chest x-ray is like having your picture taken” or “White blood cells are like police cells that can attack and destroy infection.”
- Use one-to-one teaching sessions as a method to individualize learning relevant to the child’s own experiences and as

a means of interpreting the results of nursing interventions specific to the child’s own condition.

- Provide time for clarification, validation, and reinforcement of what is being learned.
- Select individual instructional techniques that provide opportunity for privacy—an increasingly important concern for this group of learners, who often feel quite self-conscious and modest when learning about bodily functions.
- Employ group teaching sessions with others of similar age and with similar problems or needs to help children avoid feelings of isolation and to assist them in identifying with their own peers.
- Prepare children for procedures and interventions well in advance to allow them time to cope with their feelings and fears, to anticipate events, and to understand what the purpose of each procedure is, how it relates to their condition, and how much time it will take.
- Encourage participation in planning for procedures and events because active involvement helps the child to assimilate information more readily.
- Provide much-needed nurturance and support, always keeping in mind that young children are not just small adults. Praise and rewards help motivate and reinforce learning.

For Long-Term Learning

- Help school-aged children acquire skills that they can use to assume self-care responsibility for carrying out therapeutic treatment regimens on an ongoing basis with minimal assistance.
- Assist them in learning to maintain their own well-being and prevent illnesses from occurring.

Research suggests that lifelong health attitudes and behaviors begin in the early childhood phase of development and remain intrapersonally consistent throughout the stage of middle to late childhood (USDHHS, 2014).

The development of cognitive understanding of health and illness has been shown to follow a systematic progression parallel to the stage of general cognitive development (Koopman et al., 2004). As the child matures, beliefs about health and illness become less concrete and more abstract, less egocentric, and increasingly differentiated and consistent.

Motivation, self-esteem, and positive self-perception are personal characteristics that influence health behavior. Research has shown that the higher the grade level of the child, the greater the understanding of illness and an awareness of body cues. Thus, children become more actively involved in their own health care as they progress developmentally (Farrand & Cox, 1993; Whitener et al., 1998). Teaching should be directed at assisting them to incorporate positive health actions into their daily lives. Because of the importance of peer influence, group activities are an effective method of teaching health behaviors, attitudes, and values.

Adolescence (12–19 Years of Age)

Adolescence marks the transition from childhood to adulthood. During this prolonged and very change-filled time, many adolescents and their families experience much turmoil. How adolescents think about themselves and the world significantly influences many healthcare issues facing them, from anorexia to obesity. Teenage thought and behavior give insight into the etiology of some of the major health problems of this group of learners (Elkind, 1984). Adolescents are known to be among the nation's most at-risk populations (Ares, Kuhns, Dogra, & Karmik, 2015). Most recently, *Healthy People 2020* identified “Adolescent Health” as a new topic area, with objectives focused on interventions to promote health as well as mitigate the risks associated with this population (USDHHS, 2014).

For patient education to be effective, an understanding of the characteristics of the adolescent phase of development is crucial (Ackard & Neumark-Sztainer, 2001; Ormrod, 2012).

Today's adolescents comprise the generational cohort Generation Z, or Gen Z. They excel with self-directed learning and thrive on the use of technology (Shatto & Erwin, 2016).

Physical, Cognitive, and Psychosocial Development

Adolescents vary greatly in their biological, psychological, social, and cognitive development. From a physical maturation standpoint, they must adapt to rapid, dramatic, and significant bodily changes, which can temporarily result in clumsiness and poorly coordinated movement. Alterations in physical size, shape, and function of their bodies, along with the appearance and development of secondary sex characteristics, bring about a significant preoccupation with their appearance and a strong desire to express sexual urges (Crandell et al., 2012; Santrock, 2017). And, according to neuroscience research, adolescent brains are different than adult brains in the way they process information, which may explain that adolescent behaviors, such as impulsiveness, rebelliousness, lack of good judgment, and social anxiety, stem from biological reasons more than environmental influences (Packard, 2007).

Piaget (1951, 1952, 1976) termed this stage of cognitive development as the period of *formal operations*. Adolescents have attained a new, higher order level of reasoning superior to earlier childhood thoughts. They are capable of abstract thought and the type of complex logical thinking described as **propositional reasoning**, as opposed to syllogistic reasoning. Their ability to reason is both inductive and deductive, and they can hypothesize and apply the principles of logic to situations never encountered before. Adolescents can conceptualize and internalize ideas, debate various points of view, understand cause and effect, comprehend complex explanations, imagine possibilities, make sense out of new data, discern relationships among objects and events, and respond appropriately to multiple-step directions (Aronowitz, 2006; Crandell et al., 2012).

Formal operational thought enables adolescents to conceptualize invisible processes and make determinations about what others say and how they behave. With this capacity, teenagers can become obsessed with what they think as well as what others are thinking, a characteristic known as adolescent **egocentrism**. They begin to believe that everyone is focusing on the same things they are—namely, themselves and their activities. Elkind (1984) labels this belief as the **imaginary audience**, a type of social thinking that has considerable influence over an adolescent's behavior. The imaginary audience explains the pervasive self-consciousness of adolescents, who, on the one hand, may feel embarrassed because they believe everyone is looking at them and, on the other hand, desire to be looked at and thought about because this attention confirms their sense of being special and unique (Crandell et al., 2012; Oswalt, 2010; Santrock, 2017; Snowman & McCown, 2015).

Adolescents are able to understand the concept of health and illness, the multiple causes of diseases, the influence of variables on health status, and the ideas associated with health promotion and disease prevention. Parents, health-care providers, and the Internet are all potential sources of health-related information for adolescents. At this developmental stage, adolescents recognize that illness and disability are processes resulting from a dysfunction or non-function of a part or parts of the body and can comprehend the outcomes or prognosis of an illness. They also can identify health behaviors, although they may reject practicing them or begin to engage in risk-taking behaviors because of the social pressures they receive from peers as well as their feelings of invincibility (Ormrod, 2012). Elkind (1984) labels this second type of social thinking as the **personal fable**. The personal fable leads adolescents to believe that they are invulnerable—other people grow old and die, but not them; other people may not realize their personal ambitions, but they will.

This personal fable has value in that it allows individuals to carry on with their lives even in the face of all kinds of dangers. Unfortunately,

it also leads teenagers to believe they are cloaked in an invisible shield that will protect them from bodily harm despite any risks to which they may subject themselves (Alberts, Elkind, & Ginsberg, 2007; Jack, 1989; Oswalt, 2010). They can understand implications of future outcomes, but their immediate concern is with the present.

Recent research, however, reveals that adolescents 15 years of age and older are not as susceptible to the personal fable as once thought (Cauffman & Steinberg, 2000). Although children in the mid- to late-adolescent period appear to be aware of the risks they take, it is important, nevertheless, to recognize that this population continues to need support and guidance (Brown, Teufel, & Birch, 2007).

Erikson (1968) has identified the psychosocial dilemma adolescents face as one of *identity versus role confusion*. Children in this age group indulge in comparing their self-image with an ideal image (Table 5-2). Adolescents find themselves in a struggle to establish their own identity, match their skills with career choices, and determine their self. They work to emancipate themselves from their parents, seeking independence and autonomy so that they can emerge as more distinct individual personalities.

Teenagers have a strong need for belonging to a group, friendship, peer acceptance, and peer support. They tend to rebel against any actions or recommendations by adults whom they consider authoritarian. Their concern over personal appearance and their need to look and act like their peers drive them to conform to the dress and behavior of this age group, which is usually contradictory, nonconformist, and in opposition to the models, codes, and values of their parents' generation. Conflict, toleration, stereotyping, or alienation often characterizes the relationship between adolescents and their parents and other authority figures (Hines & Paulson, 2006). Adolescents seek to develop new and trusting relationships outside the home but remain vulnerable to the opinions of those whom they emulate (Santrock, 2017).

Adolescents demand personal space, control, privacy, and confidentiality. To them, illness,

injury, disability, and hospitalization mean dependency, loss of identity, a change in body image and functioning, bodily embarrassment, confinement, separation from peers, and possible death. The provision of knowledge alone is, therefore, not sufficient for this population. Because of the many issues apparent during the adolescent period, the need for coping skills is profound and can influence the successful completion of this stage of development (Grey, Kanner, & Lacey, 1999; Hoffman, 2016; Williams & McGillicuddy-De Lisi, 1999; Zimmer-Gembeck & Skinner, 2008). Some developmentalists are extending the uppermost age range of the adolescent period to 24 years of age because it has been determined that many young people in this stage do not meet the typical psychosocial milestones until well into their second decade of life (Newman & Newman, 2015).

Teaching Strategies

Although most individuals at this phase of development remain relatively healthy, an estimated 20% of U.S. teenagers have at least one serious health problem, such as asthma, learning disabilities, eating disorders (e.g., obesity, anorexia, or bulimia), diabetes, a range of disabilities resulting from injury, or psychological problems resulting from depression or physical and/or emotional maltreatment. In addition, adolescents are considered at high risk for teen pregnancy, the effects of poverty, drug or alcohol abuse, and sexually transmitted diseases such as venereal disease and AIDS. The three leading causes of death in this age group are accidents, homicide, and suicide (Kochanek, Xu, Murphy, Minino, & Kung, 2011; London et al., 2017). More than 50% of all adolescent deaths are a result of accidents, and most of these incidents involve motor vehicles (Santrock, 2017).

Despite these potential threats to their well-being, adolescents use medical services the least frequently of all age groups. Compounding this problem is the realization that adolescent health has not been a priority in the past and the health issues of this population have been

largely ignored by the healthcare system globally (Patton et al., 2016). Thus, the educational needs of adolescents are broad and varied. The potential topics for teaching are numerous, ranging from sexual adjustment, contraception, and venereal disease to accident prevention, nutrition, substance abuse, and mental health.

Healthy teens have difficulty imagining themselves as sick or injured. Those with an illness or disability often comply poorly with medical regimens and continue to indulge in risk-taking behaviors. Because of their preoccupation with body image and functioning and the perceived importance of peer acceptance and support, they view health recommendations as a threat to their autonomy and sense of control.

Probably the greatest challenge to the nurse responsible for teaching the adolescent, whether healthy or ill, is to be able to develop a mutually respectful, trusting relationship (Brown et al., 2007). Adolescents, because of their well-developed cognitive and language abilities, can participate fully in all aspects of learning, but they need privacy, understanding, an honest and straightforward approach, and unqualified acceptance in the face of their fears of embarrassment, losing independence, identity, and self-control (Ackard & Neumark-Sztainer, 2001). The American Academy of Pediatrics Committee on Adolescence (2016) cites availability, visibility, quality, confidentiality, affordability, flexibility, and coordination as important factors in providing education effectively to the adolescent population.

The existence of an imaginary audience and personal fable can contribute to the exacerbation of existing problems or cause new ones. Adolescents with disfiguring disabilities, who as young children exhibited a great deal of spirit and strength, may now show signs of depression and lack of will. For the first time, they look at themselves from the standpoint of others and reinterpret behavior once seen as friendly as actually condescending. Teenagers may fail to use contraceptives because the personal fable tells them that other people will get pregnant or get venereal disease, but not them. Teenagers with

chronic illnesses may stop taking prescribed medications because they feel they can manage without them to prove to others that they are well and free of medical constraints; other people with similar diseases need to follow therapeutic regimens, but not them.

Adolescents' language skills and ability to conceptualize and think abstractly give the nurse as educator a wide range of teaching methods and instructional tools from which to choose (Brown et al., 2007). The following teaching strategies are suggested when caring for adolescents.

For Short-Term Learning

- Use one-to-one instruction to ensure confidentiality of sensitive information.
- Choose peer-group discussion sessions as an effective approach to deal with health topics such as smoking, alcohol and drug use, safety measures, obesity, and teenage sexuality. Adolescents benefit from being exposed to others who have the same concerns or who have successfully dealt with problems like theirs.
- Use face-to-face or computer group discussion, role playing, and gaming as methods to clarify values and solve problems, which feed into the teenager's need to belong and to be actively involved. Getting groups of peers together in person or virtually (e.g., blogs, social networking, podcasts, online videos) can be very effective in helping teens confront health challenges and learn how to significantly change behavior (Snowman & McCown, 2015).
- Employ adjunct instructional tools, such as complex models, diagrams, and specific, detailed written materials, which can be used competently by many adolescents. Using technology is a comfortable approach to learning for adolescents, who generally have facility with technological equipment after years of academic and personal experience with telecommunications in the home and at school.
- Clarify any scientific terminology and medical jargon used.

- Share decision making whenever possible, because control is an important issue for adolescents.
- Include adolescents in formulating teaching plans related to teaching strategies, expected outcomes, and determining what needs to be learned and how it can best be achieved to meet their needs for autonomy.
- Suggest options so that they feel they have a choice about courses of action.
- Give a rationale for all that is said and done to help adolescents feel a sense of control.
- Approach them with respect, tact, openness, and flexibility to elicit their attention and encourage their responsiveness to teaching-learning situations.
- Expect negative responses, which are common when their self-image and self-integrity are threatened.
- Avoid confrontation and acting like an authority figure. Instead of directly contradicting adolescents' opinions and beliefs, acknowledge their thoughts and then casually suggest an alternative viewpoint or choices, such as "Yes, I can see your point, but what about the possibility of . . .?"

For Long-Term Learning

- Accept adolescents' personal fable and imaginary audience as valid, rather than challenging their feelings of uniqueness and invincibility.
- Acknowledge that their feelings are very real because denying them their opinions simply will not work.
- Allow them the opportunity to test their own convictions. Let them know, for example, that although some other special people may get away without taking medication, others cannot. Suggest, if medically feasible, setting up a trial period with medications scheduled further apart or in lowered dosages to determine how they can manage.

Although much of patient education should be done directly with adolescents to respect their right to individuality, privacy, and

confidentiality, teaching effectiveness may be enhanced by including their families to some extent (Brown et al., 2007). The nurse as educator can give guidance and support to families, helping them to better understand adolescent behavior (Hines & Paulson, 2006). Parents should be taught how to set realistic limits and at the same time foster the adolescent's sense of independence. Through prior assessment of potential sources of stress, teaching both the parents and the adolescent (as well as siblings) can be enhanced. Because of ambivalence the adolescent feels while in this transition stage from childhood to adulthood, healthcare teaching, to be effective, must consider the learning needs of the adolescent as well as the parents (Ackard & Neumark-Sztainer, 2001; Falvo, 2011).

► The Developmental Stages of Adulthood

Andragogy, the term used by Knowles (1990) to describe his theory of adult learning, is the art and science of teaching adults. Education within this framework is more learner centered and less teacher centered; that is, instead of one party imparting knowledge to another, the power relationship between the educator and the adult learner is much more horizontal (Curran, 2014). The concept of andragogy has served for years as a useful framework in guiding instruction for patient teaching and for continuing education of staff. Recently, based on emerging research and theory from a variety of disciplines, Knowles and colleagues (2015) discussed new perspectives on andragogy that have refined and strengthened the core adult learning principles that Knowles originally proposed.

The following basic assumptions about Knowles's framework have major implications for planning, implementing, and evaluating teaching programs for adults as the individual matures:

1. The adult's self-concept moves from one of being a dependent personality to being an independent, self-directed human being.
2. He or she accumulates a growing reservoir of previous experience that serves as a rich resource for learning.
3. Readiness to learn becomes increasingly oriented to the developmental tasks of social roles.
4. Adults are best motivated to learn when a need arises in their life situation that will help them satisfy their desire for information.
5. Adults learn for personal fulfillment such as self-esteem or an improved quality of life.

A limitation of Knowles's assumptions about child versus adult learners is that they are derived from studies conducted on healthy people. Illness and injury, however, have the potential to significantly change the cognitive and psychological processes used for learning (Best, 2001).

The period of adulthood constitutes three major developmental stages—the young adult stage, the middle-aged adult stage, and the older adult stage (Table 5-1). Although adulthood, like childhood, can be divided into various developmental phases, the focus for learning is quite different. Whereas a child's readiness to learn depends on physical, cognitive, and psychosocial development, adults have essentially reached the peak of their physical and cognitive capacities.

The emphasis for adult learning revolves around differentiation of life tasks and social roles with respect to employment, family, and other activities beyond the responsibilities of home and career (Boyd, Gleit, Graham, & Whitman, 1998). In contrast to childhood learning, which is subject centered, adult learning is problem centered. The prime motivator to learn in adulthood is being able to apply knowledge and skills for the solution of immediate problems. Unlike children, who enjoy learning for the sake of gaining an understanding of themselves and the world, adults must clearly perceive the relevancy of acquiring new behaviors or changing old ones for them to be willing and eager to

learn. In the beginning of any teaching–learning encounter, therefore, adults want to know how they will benefit from their efforts at learning (Knowles et al., 2015).

In contrast to the child learner, who is dependent on authority figures for learning, the adult is much more self-directed and independent in seeking information. For adults, past experiences are internalized and form the basis for

further learning. Adults already have a rich resource of stored information on which to build a further understanding of relationships between ideas and concepts (Conlan, Grabowski, & Smith, 2015). Compared to children, adults grasp relationships more quickly, but they do not tolerate learning isolated facts as well. **TABLE 5-3** highlights the main differences between teaching children and teaching adults.

TABLE 5-3 Process Elements of Andragogy

Element	Pedagogical Approach	Andragogical Approach
1. Preparing Learners	Minimal	Provide information Prepare for participation Help develop realistic expectations Begin thinking about content
2. Climate	Authority oriented Formal Competitive	Relaxed, trusting Mutually respectful Informal, warm Collaborative, supportive Openness and authenticity Humanness
3. Planning	By instructor	Mechanism for mutual planning by learners and facilitator
4. Diagnosis of Needs	By instructor	By mutual assessment
5. Setting of Objectives	By instructor	By mutual negotiation
6. Designing Learning Plans	Logic of subject matter Content units	Sequenced by readiness Problem units
7. Learning Activities	Transmittal techniques	Experiential techniques (inquiry)
8. Evaluation	By instructor	Mutual rediagnosis of needs Mutual measurement of program

Reproduced with permission from Knowles, M. S., Holton, E. F., & Swanson, R. A. (2015). *The adult learner: The definitive classic in adult education and human resource development* (8th ed.). London: Routledge: Taylor and Francis Group. Copyright © 2015 by Routledge.

Because adults already have established ideas, values, and attitudes, they also tend to be more resistant to change. In addition, adults must overcome obstacles to learning very different from those faced by children. For example, they have the burden of family, work, and social responsibilities, which can diminish their time, energy, and concentration for learning. Also, their need for self-direction may present problems because various stages of illness, as well as the healthcare setting in which they may find themselves, can force dependency. Anxiety, too, may negatively affect their motivation and ability to learn, especially if the content is perceived as difficult (Kinkead, Miller, & Hammett, 2016). Furthermore, some adults may feel too old or too out of touch with the formal learning of the school years to learn new things. If past experiences with learning were not positive, they may also shy away from assuming the role of learner for fear of the risk of failure (Boyd et al., 1998).

Although nurse educators can consider adult learners as autonomous, self-directed, and independent, these individuals often want and need structure, clear and concise specifics, and direct guidance. As such, Taylor, Marienau, and Fiddler (2000) label adults as “paradoxical” learners.

Only recently has it been recognized that learning is a lifelong process that begins at birth and does not cease until the end of life. Growth and development are a process of becoming, and learning is inextricably a part of that process. As a person matures, learning is a significant and continuous task to maintain and enhance oneself (Knowles, 1990; Knowles et al., 2015). Social scientists now recognize that adulthood “is not a single monolithic stage sandwiched between adolescence and old age” (Crandell et al., 2012, p. 403).

A variety of reasons explain why adults pursue learning throughout their lives. Basically, three categories describe the general orientation of adults toward continuing education (Knowles et al., 2015; Miller & Stoeckel, 2016):

1. Goal-oriented learners engage in educational endeavors to accomplish clear and identifiable objectives. Continuing education for them is episodic and occurs as a recurring pattern throughout their lives as they realize the need for or an interest in expanding their knowledge and skills. Adults attend night courses or professional workshops to build their expertise in a specific subject or for advancement in their professional or personal lives.
2. Activity-oriented learners select educational activities primarily to meet social needs. The learning of content is secondary to their need for human contact. Although they may choose to participate in support groups, special-interest groups, or self-help groups, or attend academic classes because of an interest in a topic being offered, they join essentially out of their desire to be around others and converse with people in similar circumstances—retirement, parenting, divorce, or widowhood. Their drive is to alleviate social isolation or loneliness.
3. Learning-oriented learners view themselves as perpetual students who seek knowledge for knowledge’s sake. They are active learners throughout their lives and tend to join groups, classes, or organizations with the anticipation that the experience will be educational and personally rewarding.

In most cases, all three types of learners initiate the learning experience for themselves. In planning educational activities for adults, it is important to determine their motives for wanting to be involved. That is, it is advantageous for the nurse educator to understand the purpose and expectations of the individuals who participate in continuing education programs. Armed with that knowledge, the nurse educator can best serve learners in the role of facilitator for

referral or resource information, thereby embracing the adults' state of independence and interdependence (Musinski, 1999).

Obviously, there are many differences between child and adult learners (Table 5-1 and Table 5-3). As the following discussion clearly reveals, there also are differences in the characteristics of adult learners within the three developmental stages of adulthood.

Young Adulthood (20–40 Years of Age)

The transition from adolescence to becoming a young adult has been termed *emerging adulthood*. Early adulthood is composed of the cohort currently between 20 and 34 years of age, who belong to the millennial generation, as well as the cohort currently aged 35 to 40, who are known as Generation X. Both generations exhibit their own characteristic traits and present different challenges to the nurse educator (Fishman, 2016). These two age cohorts encompass approximately 140 million Americans and are more ethnically diverse than ever (Crandell et al., 2012; Fry, 2016).

Young adulthood is a time for establishing long-term, intimate relationships with other people, choosing a lifestyle and adjusting to it, deciding on an occupation, and managing a home and family. These decisions lead to changes in the lives of young adults that can be a potential source of stress for them. It is a time when intimacy and courtship are pursued and spousal and/or parental roles are developed (Santrock, 2017).

Physical, Cognitive, and Psychosocial Development

During this period, physical abilities for most young adults are at their peak, and the body is at its optimal functioning capacity (Crandell et al., 2012). The cognitive capacity of young adults is fully developed, but with maturation, they continue to accumulate new knowledge and skills from an expanding reservoir of formal and informal experiences. Young adults continue in

the *formal operations* stage of cognitive development (Piaget, 1951, 1952, 1976). These experiences add to their perceptions, allow them to generalize to new situations, and improve their abilities to critically analyze, solve problems, and make decisions about their personal, occupational, and social roles. Their interests for learning are oriented toward those experiences that are relevant for immediate application to problems and tasks in their daily lives. Young adults are motivated to learn about the possible implications of various lifestyle choices (Crandell et al., 2012).

Erikson (1963) describes the young adult's stage of psychosocial development as the period of *intimacy versus isolation*. During this time, individuals work to establish trusting, satisfying, and permanent relationships with others (Table 5-2). They strive to make commitments to others in their personal, occupational, and social lives. As part of this effort, they seek to maintain the independence and self-sufficiency they worked to obtain in adolescence.

Young adults face many challenges as they take steps to control their lives. Many of the events they experience are happy and growth promoting from an emotional and social perspective, but they also can prove disappointing and psychologically draining. The new experiences and multiple decisions young adults must make regarding choices for a career, marriage, parenthood, and higher education can be quite stressful. Young adults realize that the avenues they pursue will affect their lives for years to come (Santrock, 2017).

Teaching Strategies

Based on the paucity of literature on health teaching of individuals who belong specifically to this age cohort, young adulthood is the life-span period that has received the least attention by nurse educators. At this developmental stage, prior to the emergence of the chronic diseases that characterize the middle-age and older years, young adults are generally very healthy and tend to have limited exposure to health

professionals. Their contact with the health-care system is usually for preemployment, college, or presport physicals; for a minor episodic complaint; or for pregnancy and contraceptive care (Orshan, 2008). At the same time, young adulthood is a crucial period for the establishment of behaviors that help individuals to lead healthy lives, both physically and emotionally. Many of the choices young adults make, if not positive ones, will be difficult to modify later. As Havighurst (1976) points out, this stage is full of “teachable moment” opportunities and healthcare providers must take advantage of every opportunity to promote healthy behaviors with this population (Hinkle, 2014).

Health promotion is the most neglected aspect of healthcare teaching at this stage of life. Yet, many of the health issues related to risk factors and stress management are important to deal with to help young adults establish positive health practices for preventing problems with illness in the future. The major factors that need to be addressed in this age group are healthy eating habits, regular exercise, and avoiding drug abuse. Such behaviors will reduce the incidence of high blood pressure, elevated cholesterol, obesity, smoking, and overuse of alcohol and drugs (Santrock, 2017).

The nurse as educator must find a way of reaching and communicating with this audience about health promotion and disease prevention measures. Readiness to learn does not always require the nurse educator to wait for it to develop. Rather, such readiness can be actively fostered through experiences the nurse creates. Knowledge of the individual’s lifestyle can provide cues to concentrate on when determining specific aspects of education for the young adult. For example, if the individual is planning marriage, then establishing healthy relationships, family planning, contraception, and parenthood are potential topics to address during teaching (Orshan, 2008). The motivation for adults to learn comes in response to internal drives, such as need for self-esteem, a better quality of life, or job satisfaction, and in response to external motivators, such as job

promotion, more money, or more time to pursue outside activities (Crandell et al., 2012; Miller & Stoeckel, 2016).

When young adults are faced with acute or chronic illnesses or disabilities, many of which may significantly alter their lifestyles, they are stimulated to learn to maintain their independence and return to normal life patterns. It is likely they will view an illness or disability as a serious setback to achieving their immediate or future life goals.

Because adults typically desire active participation in the educational process, whenever possible it is important for the nurse as educator to allow them the opportunity for mutual collaboration in health education decision making. They should be encouraged, as Knowles (1990) suggested, to select what to learn (objectives), how they want material to be presented (teaching methods and tools), and which indicators will be used to determine the achievement of learning goals (evaluation). Also, it must be remembered that adults bring to the teaching–learning situation a variety of experiences that can serve as the foundation on which to build new learning. Consequently, it is important to draw on their personal experiences to make learning relevant, useful, and motivating. Young adults tend to be reluctant to expend the resources of time, money, and energy to learn new information, skills, and attitudes if they do not see the content of instruction as relevant to their current lives or anticipated problems (Collins, 2004; Knowles et al., 2015).

Teaching strategies must be directed at encouraging young adults to seek information that expands their knowledge base, helps them control their lives, and bolsters their self-esteem. Whether they are well or ill, young adults need to know about the opportunities available to learning. Making them aware of health issues and learning opportunities can occur in a variety of settings, such as physicians’ offices, student health services, health fairs, community and outpatient clinics, or hospitals. In all cases, these educational opportunities must be convenient and accessible to them in terms of their lifestyle with respect to work and family responsibilities.

Relevant, applicable, and practical information is what adults desire and value—they want to know “what’s in it for me,” according to Collins (2004).

Because they tend to be very self-directed in their approach to learning, young adults do well with written patient education materials and audiovisual tools, including computer-assisted instruction, that allow them to self-pace their learning independently. Group discussion is an attractive method for teaching and learning because it provides young adults with the opportunity to interact with others of similar age and in similar situations, such as in parenting groups, prenatal classes, exercise classes, or marital adjustment sessions. Although assessment prior to teaching helps to determine the level at which to begin teaching, no matter what the content, the enduring axiom is to make learning easy and relevant. To facilitate learning, present concepts logically from simple to complex and establish conceptual relationships through specific application of information (Collins, 2004; Musinski, 1999).

Middle-Aged Adulthood (41–64 Years of Age)

Just as adolescence is the link between childhood and adulthood, so midlife is the transition period between young adulthood and older adulthood. Middle-aged Americans make up about one fourth of the population, and this current cohort has typically been labeled the baby-boom generation. Although middle-aged adulthood was once one of the most neglected age periods, baby boomers, who now make up this cohort, are receiving increasingly more attention from developmental psychologists and health-care providers. This emphasis is occurring not only because they constitute the largest cohort of any current generation but also because current middle-aged adults are the best educated, most affluent generation in history, and they have the potential to enjoy a healthier life than ever before because of medical discoveries that can stave off the aging process. In just one century,

the average life expectancy has increased by 30 years (Crandell et al., 2012; Santrock, 2017).

Thus, the concept of what has been thought of as middle age is being nudged upward. As more people live longer, middle age is now coming later in life than ever before. Adults are no longer considered to be “over the hill” when they celebrate their 40th birthday. Middle age for many healthy adults is starting later and lasting longer. Remember, chronological age is one factor, but biological, psychological, and social age also must be considered (Newman & Newman, 2015; Santrock, 2017).

During middle age, many individuals are highly accomplished in their careers, their sense of who they are is well developed, their children are grown, and they have time to share their talents, serve as mentors for others and pursue new or latent interests. This stage is a time for them to reflect on the contributions they have made to family and society, relish in their achievements, and reexamine their goals and values (Newman & Newman, 2015).

Physical, Cognitive, and Psychosocial Development

During this stage of maturation, physiological changes begin to take place. Skin and muscle tone decreases, metabolism slows down, body weight tends to increase, endurance and energy levels lessen, hormonal changes bring about a variety of symptoms, and hearing and visual acuity start to diminish. All these physical changes and others affect middle-aged adults’ self-image, ability to learn, and motivation for learning about health promotion, disease prevention, and maintenance of health (Crandell et al., 2012).

The ability to learn from a cognitive standpoint remains at a steady state for middle-aged adults as they continue in what Piaget (1951, 1952, 1976) labeled the *formal operations* stage of cognitive development. He maintained that cognitive development stopped with this fourth stage (meaning the ability to perform abstract thinking). However, over the years the critics of Piaget’s theory have begun to assert the existence

of *postformal operations*. That is, adult thought processes go beyond logical problem solving to include what is known as **dialectical thinking**. This type of thinking is defined as the ability to search for complex and changing understandings to find a variety of solutions to any given situation or problem. In other words, middle-aged adults see the bigger picture (Crandell et al., 2012).

For many adults, the accumulation of life experiences and their proven record of accomplishments often allow them to come to the teaching–learning situation with confidence in their abilities as learners. However, if their past experiences with learning were minimal or not positive, their motivation likely will not be at a high enough level to easily facilitate learning. Physical changes, especially with respect to hearing and vision, may impede learning as well (Santrock, 2017).

Erikson (1963) labels this psychosocial stage of adulthood as *generativity versus self-absorption and stagnation*. Midlife marks a point at which adults realize that half of their potential life has been spent. This realization may cause them to question their level of achievement and success. Middle-aged adults, in fact, may choose to modify aspects of their lives that they perceive as unsatisfactory or adopt a new lifestyle as a solution to dissatisfaction.

Developing concern for the lives of their grown children, recognizing the physical changes in themselves, dealing with the new role of being a grandparent, and taking responsibility for their own parents whose health may be failing are all factors that may cause adults in this cohort to become aware of their own mortality (Table 5-2). During this time, middle-aged adults may either feel greater motivation to follow health recommendations more closely or—just the opposite—may deny illnesses or abandon healthy practices altogether (Falvo, 2011).

The later years of middle adulthood are the phase in which productivity and contributions to society are valued. They offer an opportunity to feel a real sense of accomplishment from having cared for others—children, spouse, friends, parents, and colleagues for whom adults have

served as mentors. During this time, individuals often become oriented away from self and family and toward the larger community. New social interests and leisure activities are pursued as they find more free time from family responsibilities and career demands. As they move toward their retirement years, individuals begin to plan for what they want to do after culminating their career. This transition sparks their interest in learning about financial planning, alternative lifestyles, and ways to remain healthy as they approach the later years (Crandell et al., 2012).

Teaching Strategies

Depending on individual situations, middle-aged adults may be facing either a more relaxed lifestyle or an increase in stress level because of midlife crisis issues such as menopause, obvious physical changes in their bodies, responsibility for their own parents' declining health status, or concern about how finite their life really is. They may have regrets and feel they did not achieve the goals or live up to the values they had set for themselves in young adulthood or the expectations others had of them as young adults. Santrock (2017) cites research indicating that this stage in life is not so much seen as a crisis but rather as a period of midlife consciousness.

When teaching members of this age group, the nurse must be aware of their potential sources of stress, the health risk factors associated with this stage of life, and the concerns typical of midlife. Misconceptions regarding physical changes such as menopause are common. Stress may interfere with middle-aged adults' ability to learn or may be a motivational force for learning (Merriam & Bierema, 2014). Those who have lived healthy and productive lives are often motivated to contact health professionals to ensure maintenance of their healthy status. Such contacts represent an opportune time for the nurse educator to reach out to assist these middle-aged adults in coping with stress and maintaining optimal health status. Many need and want information related to chronic illnesses that can arise at this phase of life (Orshan, 2008).

Adult learners need to be reassured or complimented on their learning competencies. Reinforcement for learning is internalized and serves to reward them for their efforts. Teaching strategies for learning are similar in type to teaching methods and instrumental tools used for the young adult learner, but the content is different to coincide with the concerns and problems specific to this group of learners.

Older Adulthood (65 Years of Age and Older)

The percentage of middle-aged adults in the United States has tripled since 1900, and in 2011, the first wave of baby boomers turned 65 years of age. Older persons constitute approximately 15% of the U.S. population now, but by 2030, the number of those older than age 65 will increase to 21%, or approximately 74 million Americans. Those aged 85 and older make up the fastest-growing segment of the population in the country today, and that segment is expected to more than triple by 2060, rising to approximately 20 million (Federal Interagency Forum on Aging-Related Statistics, 2016). With more than 45% of the 2010 federal budget allocated for Medicare, Medicaid, and Social Security, a considerable portion of this country's fiscal resources is used for programs that support those 65 years and older (Crandell et al., 2012).

Some developmentalists have in recent years begun to categorize older adults into distinct divisions based on different age ranges. For example, Santrock (2017) identifies three groups of older adults: the young-old (65–74 years of age), the old-old (75–84 years of age), and the oldest-old (85 years and older). Newman and Newman (2015) have identified the last stages of aging into two categories: later adulthood (60–75 years) and elderhood (75 years until death). These new distinctions acknowledge a shift in health and productivity levels of people in the later years according to biological and social trends.

Most older people have at least one chronic condition, and many, especially in the later years, have multiple conditions. On average, they are hospitalized longer than persons in other age categories and require more teaching overall to broaden their knowledge of self-care. In addition, it is approximated by the USDHHS that as of 2016, the educational profile of older Americans is as follows: 54% of Hispanics, 77% of Black Americans, 80% of those of Asian descent, and 90% of Caucasians older than 65 years of age have a high school education; this percentage is 84% for the aggregate. These numbers have increased significantly since 1970, when only 28% of older adults had a high school diploma. However, currently, only 28% of them have a college degree at the bachelor's level or higher (USDHHS, 2016). Lower educational levels in some ethnic groups, sensory impairments, the disuse of literacy skills once learned, and cognitive changes in the population of older adults may contribute to their decreased ability to read and comprehend written materials (Best, 2001).

For these reasons, their patient education needs are generally greater and more complex than those for persons in any of the other developmental stages. Numerous studies have documented that older adults can benefit from health education programs. Their compliance, if they are given specific health directions, can be quite high. Given the considerable health-care expenditures for older people, education programs to improve their health status and reduce morbidity would be a cost-effective measure (Behm et al., 2014; Best, 2001; Mauk, 2014; Robnett & Chop, 2015).

Because American society values physical strength, beauty, social networking, productivity, and integrity of body and mind, people fear the natural losses that accompany the aging process. Growing older is a normal event, yet the inevitable continuation of human development that results in biological, psychological, and social changes with the passage of time is a reminder of mortality. Nurses and nurse educators must recognize that a significant number of older persons respond to these

changes by viewing them as challenges rather than defeats. Many aspects of older adulthood can be pleasurable, such as becoming a grandparent and experiencing retirement that gives one time to pursue lifelong interests, as well as freedom to explore new avenues of endeavor (Santrock, 2017).

Ageism describes prejudice against the older adult. This discrimination based on age, which exists in most segments of American society, perpetuates the negative stereotype of aging as a period of decline (Gavan, 2003; Miller & Stoeckel, 2016). Ageism, in many respects, can be compared to the discriminatory attitudes of racism and sexism (Crandell et al., 2012). This bias interferes with interactions between the older adult and younger age groups and must be counteracted because it “prevents older people from living lives as actively and happily as they might” (Ahroni, 1996, p. 48). Given that the aging process is universal, eventually everyone is potentially subject to this type of prejudice. New research that focuses on healthy development and positive lifestyle adaptations, rather than on illnesses and impairments in the older adult, can serve to reverse the stereotypical images of aging. Education to inform people of the significant variations that occur in the way that individuals age and education to help the older adult learn to cope with irreversible losses can combat the prejudice of ageism as well (Crandell et al., 2012).

The teaching of older persons, known as **gerogogy**, is different from teaching younger adults (andragogy) and children (pedagogy). For teaching to be effective, gerogogy must accommodate the normal physical, cognitive, and psychosocial changes that occur during this phase of growth and development (Best, 2001; Miller & Stoeckel, 2016). Until recently, little had been written about the special learning needs of older adults that acknowledged the physiological and psychological aging changes that affect their ability to learn.

Age changes, which begin in young and middle adulthood, progress significantly at this older adult stage of life. These changes often

create obstacles to learning unless nurses understand them and can adapt appropriate teaching interventions to meet the older person’s needs. The following discussion of physical, cognitive, and psychosocial maturation is based on findings reported by numerous authors (Ahroni, 1996; Best, 2001; Crandell et al., 2012; Gavan, 2003; Hinkle, 2014; Mauk, 2014; Santrock, 2017; Weinrich & Boyd, 1992).

Physical, Cognitive, and Psychosocial Development

With advancing age, so many physical changes occur that it becomes difficult to establish normal boundaries. As a person grows older, natural physiological changes in all systems of the body are universal, progressive, decremental, and intrinsic. Alterations in physiological functioning can lead secondarily to changes in learning ability. The senses of sight, hearing, touch, taste, and smell are usually the first areas of decreased functioning noticed by adults (Miller & Stoeckel, 2016).

The sensory perceptive abilities that relate most closely to learning capacity are visual and auditory changes. Hearing loss, which is very common beginning in the late 40s and 50s, includes diminished ability to discriminate high-pitched, high-frequency sounds. Visual changes such as cataracts, macular degeneration, reduced pupil size, decline in depth perception, and presbyopia may prevent older persons from being able to see small print, read words printed on glossy paper, or drive a car. Yellowing of the ocular lens can produce color distortions and diminished color perceptions.

Other physiological changes affect organ functioning and result in decreased cardiac output, lung performance, and metabolic rate; these changes reduce energy levels and lessen the ability to cope with stress. Nerve conduction velocity also is thought to decline by as much as 15%, influencing reflex times and muscle response rates. The interrelatedness of each body system has a total negative cumulative effect on individuals as they grow older.

Aging affects the mind as well as the body. Cognitive ability changes with age as permanent cellular alterations invariably occur in the brain itself, resulting in an actual loss of neurons, which have no regenerative powers. Physiological research has demonstrated that people have two kinds of intellectual ability—crystallized and fluid intelligence. **Crystallized intelligence** is the intelligence absorbed over a lifetime, such as vocabulary, general information, understanding social interactions, arithmetic reasoning, and ability to evaluate experiences. This kind of intelligence increases with experience as people age. However, it is important to understand that crystallized intelligence can be impaired by disease states, such as the dementia seen in Alzheimer’s disease. **Fluid intelligence** is the capacity to perceive relationships, to reason, and to perform abstract thinking. This kind of intelligence declines as degenerative changes occur.

The decrease in fluid intelligence results in the following specific changes:

1. *Slower processing and reaction time.* Older persons need more time to process and react to information, especially as measured in terms of relationships between actions and results. However, if the factor of speed is removed from intelligence tests, for example, older people can perform as well as younger people. In performance of activities of daily living when speed is not a factor, older adults can demonstrate their true abilities to function well and independently (Kray & Lindenberger, 2000).
2. *Persistence of stimulus (afterimage).* Older adults can confuse a previous symbol or word with a new word or symbol just introduced.
3. *Decreased short-term memory.* Older adults sometimes have difficulty remembering events or conversations that occurred just hours or days before. However, long-term memory often

remains strong, such as the ability to clearly and accurately remember something from their youth.

4. *Increased test anxiety.* People in the older adult years are especially anxious about making mistakes when performing; when they do make an error, they become easily frustrated. Because of their anxiety, they may take an inordinate amount of time to respond to questions, particularly on tests that are written rather than verbal.
5. *Altered time perception.* For older persons, life becomes more finite and compressed. Issues of the here and now tend to be more important, and some adhere to the philosophy, “I’ll worry about that tomorrow.” This way of thinking can be detrimental when applied to health issues because it serves as a vehicle for denial or delay in taking appropriate action.

Despite the changes in cognition caused by aging, most research supports the premise that the ability of older adults to learn and remember is virtually as good as ever if special care is taken to slow the pace of presenting information, to ensure relevance of material, and to give appropriate feedback when teaching (**FIGURE 5-1**).

Erikson (1963) labels the major psychosocial developmental task at this stage in life as *ego integrity versus despair*. This phase of older adulthood includes dealing with the reality of aging, the acceptance of the inevitability that all persons die, the reconciling of past failures with present and future concerns, and developing a sense of growth and purpose for those years remaining (Table 5-2). The most common psychosocial tasks of aging involve changes in lifestyle and social status based on the following circumstances.

- Retirement
- Illness or death of spouse, relatives, and friends
- The moving away of children, grandchildren, and friends

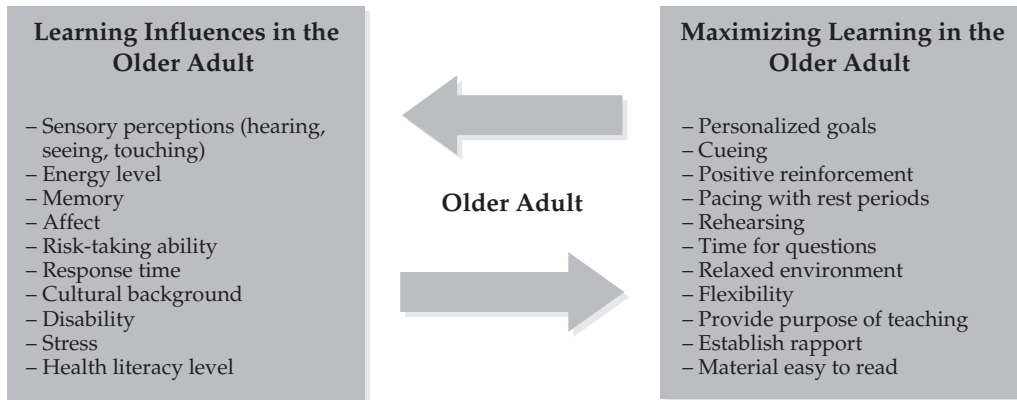


FIGURE 5-1 Learning in the older adult.

Data from Mauk, K. L. (2014). *Gerontological nursing: Competencies for care* (3rd ed.). Burlington, MA: Jones & Bartlett Learning; Rendon, D. C., Davis, D. K., Gioiella, E. C., & Tranzillo, M. J. (1986). The right to know, the right to be taught. *Journal of Gerontological Nursing*, 12(12), 36.

- Relocation to an unfamiliar environment such as an extended-care facility or senior residential living center

After Erikson's death in 1994, a ninth stage of psychosocial development, *hope and faith versus despair* was published by his wife in the book *The Life Cycle Completed* (Erikson & Erikson, 1998). This new final stage was developed from notes that Erikson left behind, along with the conversations he had with his wife. It addresses those individuals reaching their late 80s and older, identifying that aging individuals need to accept greater assistance as their bodies age. The goal is to find a renewed awareness of self in accordance with this need for additional care while eventually achieving a new sense of wisdom that is less materialistic and moves the individual beyond physical limits (Crandell et al., 2012; Erikson & Erikson, 1998). Although this additional stage has been published for some time, it has not been incorporated into the literature discussing Erikson's stages of development. However, Brown and Lowis (2003) conducted a study that did provide some evidence of a distinct differentiation between stages eight and nine in aging individuals.

Depression, grief, loneliness, and isolation, once thought to be common traits among older adults, have now been found by researchers to

vary from less frequent to no more frequent than the incidence rate found in middle adulthood. This situation arises because older adults overall have fewer economic hardships and increased religiosity. However, depressive symptoms do increase in the oldest-old and are thought to be associated with more physical disability, more cognitive impairment, and lower socioeconomic status.

For those who experience major depression (the "common cold" of mental disorders), the most likely predictors are a previous history of depression, lack of perceived social support, poor health, disability, and losing members of the established social network (Santrock, 2017). These losses, which signify a threat to one's own autonomy, independence, and decision making, result in isolation, financial insecurity, diminished coping mechanisms, and a decreased sense of identity, personal value, and societal worth. With aging, some individuals, particularly the oldest-old, begin to question their perception of a meaningful life—that is, the potential for further enjoyment, pleasure, and satisfaction. Depressive symptoms in the oldest-old, especially men, are thought to be associated with more physical disability, more cognitive impairment, and lower socioeconomic status (Federal Interagency Forum on Aging-Related Statistics, 2016; Santrock, 2017).

Separate from biological aging but closely related are the many sociocultural factors that affect how older adults see themselves as competent individuals (Crandell et al., 2012; Leifer & Hartston, 2013; Newman & Newman, 2015; Santrock, 2017). The following traits regarding personal goals in life and the values associated with them are significantly related to motivation and learning:

1. *Independence.* The ability to provide for their own needs is the most important aim of most older persons, regardless of their state of health. Independence gives them a sense of self-respect, pride, and self-functioning so as not to be a burden to others. Health teaching is the tool to help them maintain or regain independence.
2. *Social acceptability.* Winning approval from others is a common goal of many older adults. It is derived from health, a sense of vigor, and feeling and thinking young. Despite declining physical attributes, the older adult often has residual fitness and functioning potentials. Health teaching can help to channel these potentials.
3. *Adequacy of personal resources.* Resources, both external and internal, are important considerations when assessing the older adult's current health and wellness status. Life patterns, which include habits, physical and mental strengths, and economic situation, should be assessed to determine how to incorporate teaching to complement existing regimens and resources (financial and support system) with new required behaviors.
4. *Coping mechanisms.* The ability to cope with change during the aging process is indicative of the person's readiness for health teaching. Positive coping mechanisms allow for self-change as older persons draw on life experiences and knowledge

gained over the years. Negative coping mechanisms indicate an individual's focus on losses and show that his or her thinking is immersed in the past. The emphasis in teaching is on exploring alternatives, determining realistic goals, and supporting large and small accomplishments.

5. *Meaning of life.* For well-adapted older persons, having realistic goals allows them the opportunity to enjoy the smaller pleasures in life, whereas less well-adapted individuals may be frustrated and dissatisfied with personal inadequacies. Health teaching must be directed at ways older adults can maintain optimal health so that they can derive pleasure from their leisure years.

Teaching Strategies

Learning in older adults can be affected by such sociological, psychological, and cognitive factors as retirement, economics, mental status, and information processing abilities (Crandell et al., 2012; Miller & Stoeckel, 2016; Santrock, 2017). Understanding older persons' developmental tasks allows nurses to alter how they approach both well and ill individuals in terms of counseling, teaching, and establishing a therapeutic relationship. Nurses must be aware of the possibility that older patients may delay medical attention. Decreased cognitive functioning, sensory deficits, lower energy levels, and other factors may prevent early disease detection and intervention. A decline in psychomotor performance affects older adults' reflex responses and their ability to handle stress. Coping with simple tasks becomes more difficult. Chronic illnesses, depression, and literacy levels, particularly among the oldest-old, have implications with respect to how they care for themselves (eating, dressing, and taking medications) as well as the extent to which they understand the nature of their illnesses (Best, 2001; Katz, 1997; Mauk, 2014; Phillips, 1999).

In working with older adults, reminiscing is a beneficial approach to use to establish a therapeutic relationship. Memories can be quite powerful. Talking with older persons about their experiences—marriage, children, grandchildren, jobs, community involvement, and the like—can be very stimulating. Furthermore, their answers will give the nurse insight into their humanness, their abilities, and their concerns.

Too many times nurses and other health professionals believe the adage, “You can’t teach an old dog new tricks.” Gavan (2003) warns that it is easy to fall into the habit of believing the myths associated with the intelligence, personality traits, motivation, and social relations of older adults. She outlined the following prevalent myths that must be dispelled to prevent harmful outcomes in the older adult when these myths are assumed to be true:

Myth No. 1: Senility. Intelligence test scores indicate that many older adults maintain their cognitive functioning well into their 80s and 90s. Mental decline is not always caused by the aging process itself but rather by disease processes, medication interactions, sensory deficits, dehydration, and malnutrition.

Myth No. 2: Rigid Personalities. Personality traits, such as agreeableness, satisfaction, and extraversion, remain stable throughout the older adult years. Although diversity in personality traits among individuals in the older population exists as it does in all other stages of life, labeling older adults as cranky, stubborn, and inflexible does a disservice to them.

Myth No. 3: Loneliness. As mentioned earlier, the belief that older adults are more frequently vulnerable to depression, isolation, and feelings of being lonely has not been upheld by research, which indicates that their satisfaction with life continues at a steady level throughout the period of adulthood.

Myth No. 4: Abandonment. It is untrue that older adults are abandoned by their children, siblings, or good friends. The

amount of contacts older adults have with significant others remains constant over time. Successful aging depends on an extended family support network.

Crandell et al. (2012) also point out that American culture is preoccupied with youthfulness and has distorted notions about late adulthood that perpetuate negative views of this generation. There is no typical older adult—not all individuals in this age group are unhealthy, unhappy, fearful, institutionalized, or disengaged; dwell on their own mortality; or find themselves in financial straits. Stereotypes can have a very powerful impact on older adults in both a positive and negative way, affecting their physical and cognitive functioning. Positive stereotypes can bring out the best in a person, whereas negative ones can lead to fulfillment of a pessimistic state (Bennett & Gaines, 2010).

Nurse educators may not even be aware of their stereotypical attitudes toward older adults. Furthermore, healthcare providers make assumptions about older clients that cause them to overlook problems that could be treatable (Gavan, 2003). To check their assumptions, nurses can think about the last time they gave instructions to an older patient and ask themselves the following questions.

- Did I talk to the family and ignore the patient when I described some aspect of care or discharge planning?
- Did I tell the older person not to worry when he or she asked a question? Did I say, “Just leave everything up to us”?
- Did I eliminate information that I normally would have given to a younger patient?
- Did I attribute a decline in cognitive functioning to the aging process without considering common underlying causes in mental deterioration, such as effects of medication interactions, fluid imbalances, poor nutrition, or sensory impairments?

All health professionals must remember that older people can learn, but their abilities and needs differ from those of younger persons.

The process of teaching and learning is much more rewarding and successful for both the nurse and the patient if it is tailored to fit the older adult's physical, cognitive, motivational, and social differences.

Because changes during aging vary considerably from one individual to another, it is essential to assess each learner's physical, cognitive, and psychosocial functioning levels before developing and implementing any teaching plan (Miller & Stoeckel, 2016). Keep in mind that older adults have an overall lower educational level of formal schooling than does the remainder of the population. Also, they were raised in an era when consumerism and health education were practically nonexistent. As a result, older people may feel uncomfortable in the teaching-learning situation and may be reluctant to ask questions.

As the older population becomes more educated and in tune with consumer activism in the health field, these individuals will likely have an increased desire to actively participate in decision making and demand more detailed and sophisticated information. Nurse educators must take steps to support older clients in making decisions affecting their health (Mauk, 2014). This increased participation by clients can assist in managing chronic diseases, promoting quality and safety in healthcare organizations, and ensuring effective redesign of care and treatment-related processes (Longtin et al., 2010). Further, the involvement of clients in deciding the course of their own care is supported by *Healthy People 2020* (USDHHS, 2014).

Health education for older persons should be directed at promoting their involvement and changing their attitudes toward learning (Ahroni, 1996; Weinrich & Boyd, 1992). A climate of mutual respect in which they are made to feel important for what they once were as well as for what they are today should be cultivated. Interaction needs to be supportive, not judgmental.

Interventions work best when they take place in a casual, informal atmosphere. In the primary care setting, where time is often

limited, it may be beneficial to schedule additional time, if possible, to allow for a more relaxed environment. Individual and situational variables such as motivation, life experiences, educational background, socioeconomic status, health or illness status, and motor, cognitive, and language skills may all influence the ability of the older adult to learn.

A recent report found that 59% of those persons older than age 65 are engaged in some type of computer use (Smith, 2014). Thus, although many older adults routinely use computers, a good number do not. Assuming the client has the computer skills necessary to look up healthcare information or engage in self-education can derail learning. As the population continues to age, computer use will be more prevalent and preferred by clients who have been comfortable using technology to increase their knowledge (Mauk, 2014). However, despite the cognitive comfort some aging clients have with technology, the nurse may need to suggest adaptive devices for the computer to accommodate the physical changes of aging.

Some of the more common aging changes that affect learning and the teaching strategies specific to meeting the needs of the older adult are summarized in Table 5-1. When teaching older persons, abiding by the following specific tips can create an environment for learning that considers major changes in their physical, cognitive, and psychosocial functioning (Best, 2001; Crandell et al., 2012; Doak, Doak, & Root, 1996; Katz, 1997; Phillips, 1999; Robnett & Chop, 2015; Ruholl, 2003; Santrock, 2017; Weinrich & Boyd, 1992):

Physical Needs

1. To compensate for visual changes, teaching should be done in an environment that is brightly lit but without glare. Visual aids should include large print, well-spaced letters, and the use of primary colors. The educator should wear bright colors and a visible name tag. Use white or off-white, flat matte paper and black print

for posters, diagrams, and other written materials.

Because of older persons' difficulty in discriminating certain shades of color, avoid blue, blue-green, and violet hues. Keep in mind that tasks that require recognizing different shades of color, such as test strips measuring the presence of sugar in the urine, may present learning difficulties for older patients. Color distortions can have an especially devastating effect on learning if, for example, the type of pills are referred to by color in guiding patients to take medications as prescribed. Green, blue, and yellow pills may all appear gray to older persons.

Additional accommodations should be made to meet older adults' physical needs, such as arranging seats so that the learner is reasonably close to the instructor and to any visual aids that may be used. For patients who wear glasses, be sure they are readily accessible, lenses are clean, and frames are properly fitted.

2. To compensate for hearing losses, eliminate extraneous noise, avoid covering your mouth when speaking, directly face the learner, and speak slowly. These techniques assist the learner who may be seeking visual confirmation of what is being said.

Low-pitched voices are heard best, but be careful not to drop your voice at the end of words or phrases. Do not shout, because it distorts sounds and the decibel level is usually not a problem for individuals with hearing impairments. The intensity of sound seems to be less important than the pitch and rate of auditory stimuli.

Word speed should not exceed 140 words spoken per minute. If the learner uses hearing aids, be sure he or she has working batteries. Ask for feedback from the learner to

determine whether you are speaking too softly, too fast, or not distinctly enough. When addressing a group, microphones are useful aids.

Be alert to nonverbal cues from the audience. Participants who are having difficulty with hearing your message may try to compensate by leaning forward, turning the good ear to the speaker, or cupping their hands to their ears. Ask older persons to repeat verbal instructions to be sure they heard and interpreted correctly the entire message.

3. To compensate for musculoskeletal problems, decreased efficiency of the cardiovascular system, and reduced kidney function, keep sessions short, schedule frequent breaks to allow for use of bathroom facilities, and allow time for stretching to relieve painful, stiff joints and to stimulate circulation. Provide pain medication and encourage the learner to follow his or her usual pain management routine. Also, provide comfortable seating.
4. To compensate for any decline in central nervous system functioning and decreased metabolic rates, set aside more time for the giving and receiving of information and for the practice of psychomotor skills. Also, do not assume that older persons have the psychomotor skills necessary to handle technological equipment for self-paced learning, such as computers and mouse, ear buds instead of headsets, MP3 players, and DVD players. In addition, they may have difficulty with independently applying prostheses or changing dressings because of decreased strength and coordination. Be careful not to misinterpret the loss of energy and motor skills as a lack of motivation.
5. To compensate for the impact of hearing and visual changes on computer

use, be sure that the speakers on the computer are working well and use headphones to block background noise. The computer screen should be clean and free of glare, offer good resolution, and provide large-enough print. Further, clients with arthritis may need to learn alternative ways to use the mouse (Mauk, 2014). **TABLE 5-4** outlines specific strategies that can assist older adults to overcome problems associated with computer use.

Cognitive Needs

1. To compensate for a decrease in fluid intelligence, provide older persons with more opportunities to process

and react to information and to see relationships between concepts. Research has shown that older adults can learn anything if new information is tied to familiar concepts drawn from relevant past experiences.

When teaching, nurses should avoid presenting long lists by dividing a series of directions for action into short, discrete, step-by-step messages and then waiting for a response after each one. For instance, to give directions about following different menus depending on exercise levels, they can use an active voice to personalize the message. For example, instead of saying, “Use menu A if not active; use menu B if somewhat

TABLE 5-4 Problems That Can Be Overcome by Older Adults Using Computers

Age Change	Effect on Computer Use	Possible Solutions
Hearing	Sound from computer may not be heard	Use earphones to enhance hearing and eliminate background noise. Speak slowly and clearly.
Vision	Vision declines, need for bifocal glasses, viewing monitor may be difficult, problems with glaucoma and light/colors	Adjust monitor’s tilt to eliminate glare. Change size of font to 14. Make sure contrast is clear. Change the screen resolution to promote color perception.
Motor control tremors	May affect use of keyboard or control of mouse, may not be able to hold the mouse and consistently click correct mouse buttons	Highlight area and press Enter. Avoid double clicking.
Arthritis	May not be able to hold the mouse and consistently click correct mouse buttons	Highlight area and press Enter. Teach how to use options on keyboard.
Attention span	Problems with inability to focus and making correct inferences	Priming—introduce concept early on. Repetition is key to retention. Use cheat sheets.

active; use menu C if very active,” they should say, “You should use menu A if you are not active.” Then wait for the learner’s response, which might be, “That’s what I should eat if I’m not very active?” The nurse educator can follow up with the response, “That’s right. And if you are somewhat active, you should . . .”

Older persons also tend to confuse previous words and symbols with a new word or symbol being introduced. Again, nurse educators can wait for a response before introducing a new concept or word definition. For decreased short-term memory, coaching and repetition are very useful strategies that assist with recall. Memory also can be enhanced by involving the learner in devising ways to remember how or when to perform a procedure. Because many older adults experience test anxiety, try to explain procedures simply and thoroughly, reassure them, and, if possible, give verbal rather than written tests.

2. Be aware of the effects of medications and energy levels on concentration, alertness, and coordination. Try to schedule teaching sessions before or well after medications are taken and when the person is rested. For example, the patient who has just returned from physical therapy or a diagnostic procedure will likely be too fatigued to attend to learning.
3. Be certain to ask what an individual already knows about a healthcare issue or technique before explaining it. Repetition for reinforcement of learning is one thing; repeating information already known may seem patronizing. Nurse educators should never assume that because someone has been exposed to information before that the individual, in fact,

learned it. Confirm patients’ level of knowledge before beginning to teach. Basic information should be understood before progressing to more complex information.

4. Convincing older persons of the usefulness of what the educator is teaching is only half the battle in getting them motivated. Nurse educators may also have to convince patients that the information or technique they are teaching is correct. Anything that is entirely strange or that upsets established habits is likely to be far more difficult for older adults to learn. Information that confirms existing beliefs (cognitive schema) is better remembered than that which contradicts these beliefs. Patients with chronic illnesses frequently have established schemas about their medical conditions that they have embraced for years.

As perception slows, the older person’s mind has more trouble accommodating to new ways than does the mind of a younger person. Find out about older persons’ health habits and beliefs before trying to change their ways or teach something new. For example, many older adults were taught as children that pain is a sign that something is wrong and they should always stop whatever they are doing if it causes pain. Educators need to identify this belief before trying to teach them that they sometimes need to move through their pain to avoid stiffness and joint contractures.

5. Arrange for brief teaching sessions because a shortened attention span (attentional narrowing) requires scheduling a series of sessions to provide sufficient time for learning. In addition, if the material is relevant and focused on the here and now,

older persons are more likely to be attentive to the information being presented. If procedures or treatments are perceived as stressful or emotionally threatening, attentional narrowing occurs.

6. Recognize that the process of conceptualizing and the ability to think abstractly become more difficult with aging. Conclude each teaching session with a summary of the information presented and allow for a question-and-answer period to correct any misconceptions.

FIGURE 5-2 presents strategies to meet the cognitive needs of older adults.

Psychosocial Needs

1. Assess family relationships to determine how dependent the older person is on other members for financial and emotional support. In turn, nurse educators can explore the level of involvement by family members in reinforcing the lessons they are teaching and in giving assistance with self-care measures. Do family members help the older

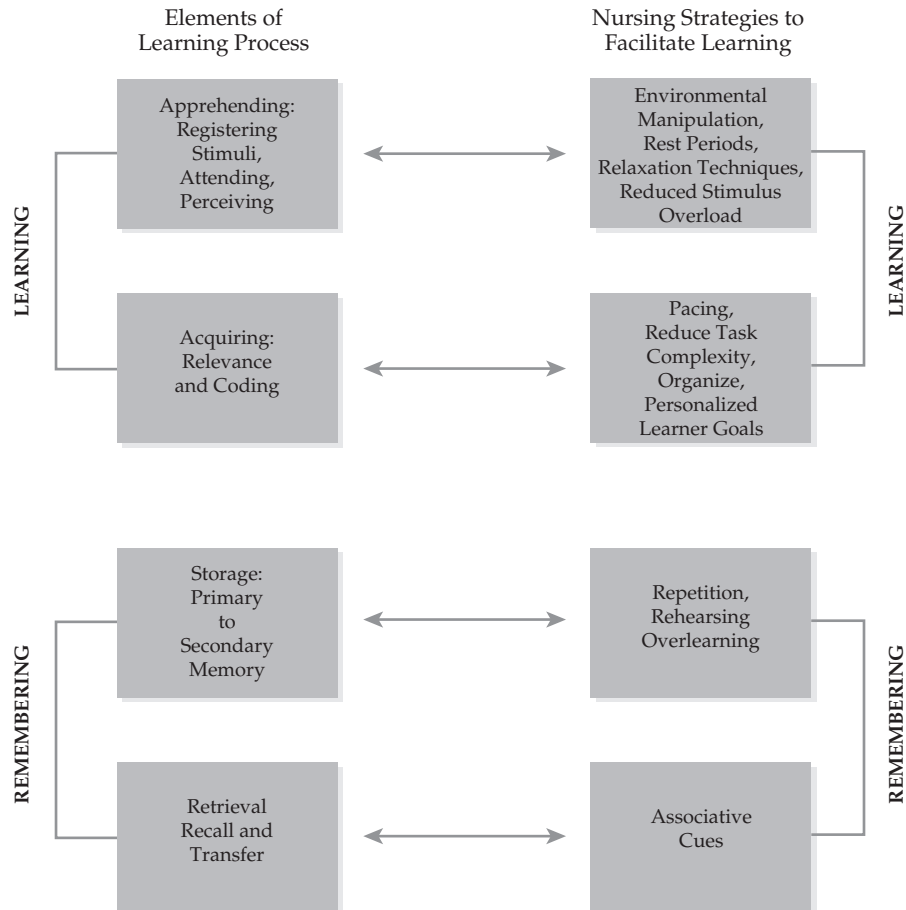


FIGURE 5-2 A basic gerontological teaching–learning model for nursing.

Reproduced from Rendon, D. C., Davis, D. K., Gioiella, E. C., & Tranzillo, M. J. (1986). The right to know, the right to be taught. *Journal of Gerontological Nursing*, 12(12), 36. Reproduced with permission of SLACK Incorporated.

person to function independently, or do they foster dependency? With permission of the patient, include family members in teaching sessions and enlist their support.

2. Determine availability of resources. A lack of resources can sabotage any teaching plan, especially if the recommendations include expecting older adults to carry out something they cannot afford or lack the means to do, such as buying or renting equipment, having transportation to get to therapy or teaching sessions, purchasing medications, and the like.
3. Encourage active involvement of older adults to improve their self-esteem and to stimulate them both mentally and socially. Teaching must be directed at helping them find meaningful ways to use talents acquired over their lifetime. Establishing a rapport based on trust can provide them contact with others to bolster their sense of self-worth.
4. Identify coping mechanisms. No other time in the life cycle carries with it the number of developmental tasks associated with adaptation to loss of roles, social and family contacts, and physical and cognitive capacities that this time does. Teaching must include offering constructive methods of coping.

The older person's ability to learn may be affected by the methods and materials chosen for teaching. One-to-one instruction provides a nonthreatening environment for older adults in which to meet their individual needs and goals. This teaching approach helps them to compensate for their special deficits and promotes their active participation in learning. Group teaching also can be a beneficial approach for fostering social skills and maintaining contact with others through shared experiences.

Self-paced instructional tools may be very appropriate, but it is important to know the client's previous learning techniques, mental and physical abilities, and comfort levels with certain approaches before assigning any such tools. Many older adults grew up in a time when technology was very different than it is today, and those who have always learned by reading and discussion may not like electronic devices. Introducing new teaching methods and tools, such as the use of computer and interactive video formats, without adequate instructions on how to operate these technical devices, may inhibit learning by increasing anxiety and frustration levels and may adversely affect self-esteem.

Games, role play, demonstration, and return demonstration can be used to rehearse problem-solving and psychomotor skills if these methods, and the tools used to complement them, are designed appropriately to accommodate the various developmental characteristics of this age group. For example, speed or competition should not be factors in the games chosen, and plenty of time should be reserved for return demonstrations. These teaching methods stimulate learning and can offer active learning opportunities to put knowledge into practice. Written materials, if appropriate in terms of literacy level and visual impairments in the older adult, are excellent adjuncts to augment, supplement, and reinforce verbal instructions.

► The Role of the Family in Patient Education

The role of the family is considered one of the key variables influencing positive patient care outcomes. The primary motives in patient education for involving family members in the care delivery and decision-making process are to decrease the stress of hospitalization, reduce costs of care, increase satisfaction with care, reduce hospital readmissions, and effectively prepare the patient for self-care management outside

the healthcare setting. Family caregivers provide critical emotional, physical, and social support to the patient (Gavan, 2003; James & Hughes, 2016; Reeber, 1992; Reinhard, Levine, & Samis, 2012).

Future projections indicate that the number of Americans who need long-term services and supports (LTSS) in the home will continue to grow at a significant rate, more than doubling from 12 million today to 27 million by 2050. According to federal statistics, 20% of individuals over 65 years of age need assistance from an informal caregiver with at least one activity of daily living, such as medication administration, and for those over 85 years of age, this percentage increases to 41%. Based on 2013 data, it is estimated that the approximate value of services provided to adults by family caregivers is \$470 billion annually (James & Hughes, 2016).

The role of family caregivers is central to the quality of care for older adults in the community. Although the physical, emotional, and financial toll on caregivers can be great (James & Hughes, 2016), including the family members in the teaching–learning process helps to ensure that the situation is a win-win scenario for both the clients and the nurse educators. Family role enhancement and increased knowledge on the part of the family have positive benefits for the learners as well as the teachers. Patients derive increased satisfaction and greater independence in self-care, and nurses experience increased job satisfaction and personal gratification in helping patients to reach their potential and achieve successful outcomes (Barnes, 1995; Gavan, 2003).

Numerous nursing, life-span development, and educational psychology theories provide the conceptual frameworks for understanding the dynamics and importance of family relationships as influential in achieving teaching–learning outcomes. Although a great deal of attention has been given to the ways in which young and adolescent families function, unfortunately minimal attention has been paid to the dynamics of the complex interactions that characterize the aging family (Gavan, 2003).

In patient education, the nurse may be tempted to teach as many family members as possible. Realistically, it is difficult to coordinate the instruction of so many different people. The more individuals involved, the greater the potential for misunderstanding of instruction. The family must make the deliberate decision as to who is the most appropriate person to take the primary responsibility as the caregiver.

The nurse educator must determine how caregivers feel about the role of providing supportive care and about learning the necessary information. They must also explore caregiver learning style preferences, cognitive abilities, fears and concerns, and current knowledge of the situation. The family and the nurse may perceive the patient problem differently (Mauk, 2014). Such difference must be identified so that effective teaching can be provided. The caregiver needs similar information to what the patient is given to provide support, feedback, and reinforcement of self-care consistent with prescribed regimens of care. In some situations, a secondary caregiver is identified and also must be considered when teaching.

Sometimes the family members need more information than the patient to compensate for any sensory deficits or cognitive limitations the patient may have. Anticipatory teaching with family caregivers can reduce their anxiety, uncertainty, and lack of confidence. What the family is to *do* is important, but what the family is to *expect* also is essential information to be shared during the teaching–learning process (Haggard, 1989). The greatest challenge for caregivers is to develop confidence in their ability to do what is right for the patient. Education is the means to help them confront this challenge (Reinhard et al., 2012).

The family can be the educator's greatest ally in preparing the patient for discharge and in helping the patient to become independent in self-care. The patient's family is perhaps the single most significant determinant of the success or failure of the education plan and achievement of successful aging (Capezuti, 2014; Gavan, 2003; Haggard, 1989). Rankin and

Stallings's 2001 model for patient and family education serves as a foundation for assessing the family profile to determine the family members' understanding of the actual or potential health problem(s), the resources available to them, their ways of functioning, and their educational backgrounds, lifestyles, and beliefs.

Education is truly the most powerful tool nurse educators possess to ensure optimal care and the transfer of power to the patient–family dyad. It is imperative that attention be focused on both the assumed and the expected responsibilities of family caregivers. The role of the family has been stressed in each developmental section in this chapter. Table 5-1 outlines appropriate interventions for the family at different stages in the life cycle.

► State of the Evidence

In an extensive review of the literature, a significant number of studies, from both primary and secondary sources, that were carried out by nurses and other healthcare professionals were found to support the application of teaching and learning principles to the education of middle-aged and older adult clients in various healthcare settings. However, current nursing and healthcare research focusing specifically on patient education approaches applicable to the age cohorts of children, adolescents, and the young adult population, as well as instructional needs of family members as caregivers, is lacking.

For example, the article by Richmond and Kotelchuck (1984), written more than 3 decades ago, remains an excellent and thorough examination of health maintenance in children, including children's cognitive understanding of health and disease, their psychological control over health, parental and media influences on health behaviors, the impact of school health education, and the role of health professionals in the management of childhood illness and health services for children. Currently, the National Resource Center for Health and Safety in Child Care and Early Education (2017) publishes

up-to-date information on performance standards and guidelines for a program of health-care activities for children. However, updated information in the healthcare literature on the application of new approaches to foster child health is sorely needed.

To bolster general understanding of the physical, cognitive, and psychosocial (emotional) traits of human development across the life span, plenty of excellent resources, well grounded by research evidence, exist in the fields of psychology in general and educational psychology, in particular. However, much of the educational psychology literature focuses extensively on the application of teaching and learning principles only to preschool and K–12 classrooms. Understandably, life-span developmental scientists do not specifically consider health education of well individuals with respect to disease prevention, risk reduction, and health promotion efforts or to health promotion, maintenance, and rehabilitation measures for persons who are acutely and chronically ill. The application and translation of developmental characteristics to the teaching and learning aspects of healthcare delivery are the responsibility of nurses and other healthcare providers. Much more investigation is needed to demonstrate how to effectively teach clients at different developmental stages based on their learning needs, learning styles, and readiness to learn, thereby ensuring achievement of the most positive client-centered outcomes possible.

Malcolm Knowles's original 1973 theory about adult learning and his subsequent modifications and clarifications of his theory (Knowles, 1990; Knowles et al., 2015) seem to be well accepted and have stood the test of time. Piaget's theory on cognitive development also has been accepted and extensively applied over the years, but recent critics of Piaget have challenged the assumptions underlying his theory with respect to the last stage of development (formal operations). Today, psychologists speculate that a fifth and qualitatively higher level of thinking follows adolescence, a stage

postulated as the postformal operations period of adulthood. Vygotsky's sociocultural theory adds another dimension to understanding cognitive development that was not addressed by Piaget (Crandell et al., 2012; Santrock, 2017). A contemporary interpretation of Vygotsky's theory to the classroom is the current interest in collaborative group learning with peers (McLeod, 2007).

Erickson's theory of the eight stages of psychosocial development, whereby individuals face unique stage-related tasks (crises that must be resolved to reduce one's vulnerability and enhance one's potential), is still recognized as elucidating the unique turning points in life that require successful completion for healthy, normal development to occur. Although Erickson's theory continues to be widely applied to the field of life-span development, the existence of a ninth stage of development, *hope and faith versus despair*, has received relatively little attention in the literature. More research is needed to confirm the existence of this final stage of psychosocial development, which addresses the unique tasks of the oldest-old (Erikson & Erikson, 1998).

Recently, increased attention has been paid to the appropriateness of teaching methods and instructional materials (especially as they relate to multimedia technology) for college-aged students and adult learners to meet their expectations for lifelong learning. Given the fact that the population is steadily aging, nurses are caring for an increasingly older audience of learners. Many of today's nursing students are somewhat older than the traditional college-aged students, and nursing staff are adult continuing-education learners. It is gratifying to witness the acknowledgment of these population changes through an emphasis on studying generational differences in learner preferences, modes of information processing, and memory and recall with respect to the impact of standard versus newer technological methods and tools for the effective delivery of instruction. The literature, such as the articles written by Billings and Kowalski (2004), Fishman (2016), and Shatto and Erwin

(2016), highlight the different experiences, values, beliefs, and needs of learners from varied generational backgrounds.

Although there has been an upsurge of interest in educational strategies and techniques for teaching and learning as they apply to certain population groups in the broad health-care arena, much more research needs to be done regarding the creative leadership role of the nurse educator functioning as facilitator rather than teacher of patients and family members (at all stages of development) and of nursing students and staff (Donner, Levonian, & Slutsky, 2005). Research has only begun to scratch the surface of how teaching and learning are affected by situational variables, such as chronic illness, acute illness, disability, or wellness; by personality traits, such as motivation and learning styles; by temperament responses, such as anxiety and attention span; and by sociocultural influences, such as gender, economic status, and educational background.

Another area requiring further exploration is the role of family and other support systems on the success of educational endeavors to help Americans of all ages maintain and improve their health status. Much more evidence from research needs to be conducted on family structure and the many changing relationships in society that promote or hinder teaching and learning of clients in various healthcare settings.

The national initiatives of *Healthy People 2020*, as well as pending policy goals at local and state levels, will not be realized unless a better understanding is gained of the impact of physical, cognitive, psychological/emotional, and sociocultural changes that occur across the life course that can serve as a guideline for teaching and learning in nursing and health-care practice.

► Summary

For nurses, it is important to understand the specific and varied tasks associated with each

developmental stage to individualize the approach to education in meeting the needs and desires of clients and their families. Assessment of physical, cognitive, and psychosocial maturation within each developmental period is crucial in determining the appropriate strategies to facilitate the teaching–learning process. The younger learner is, in many ways, very different from the adult learner. Issues of dependency, extent of participation, rate of and capacity for learning, and situational and emotional obstacles to learning vary significantly across the various phases of development.

Readiness to learn in children is very subject centered and highly influenced by their physical, cognitive, and psychosocial maturation. By comparison, motivation to learn in adults is very problem centered and more oriented to psychosocial tasks related to roles and expectations of work, family, and community activities.

For client education to be effective, the nurse in the role of educator must create an environment conducive to learning by presenting information at the learner's level, inviting participation and feedback, and identifying whether parental, family, and/or peer involvement is appropriate or necessary. Nurses are the main source of health information. In concert with the client, they must facilitate the teaching–learning process by determining what needs to be taught, when to teach, how to teach, and who should be the focus of teaching based on the developmental stage of the learner.

When nursing students and staff are the audience of learners, the educator also is responsible for assuming the leadership role as

facilitator of the learning process. In conjunction with these adult learners, nurse educators can establish objectives and learner-centered approaches that challenge the educator's creativity to foster self-direction, motivation, interest, and active participation for independence and interdependence in learning.

Review Questions

1. What are the seven stages of development?
2. Define pedagogy, andragogy, and gerogogy.
3. Who is the expert in cognitive development? What are the terms or labels used by this expert to identify the key cognitive milestones?
4. Who is the expert in psychosocial development? What are the terms or labels used by this expert to identify the key psychosocial milestones?
5. What are the salient or prominent characteristics at each stage of development that influence the ability to learn?
6. What are three main teaching strategies for each stage of development?
7. How do people you know in each stage of development compare with what you have learned about physical, cognitive, and psychosocial characteristics at the various developmental stages?
8. What is the role of the family in the teaching and learning process in each stage of development?
9. How does the role of the nurse vary when teaching individuals at different stages of development?

CASE STUDY

Your local primary care network is developing a new program that focuses on a family-centered approach to diabetes management. Expected patient outcomes of the program are to reduce hospitalizations and days off from work or school. Your role as a nursing consultant to this program is to help the team develop a comprehensive, family-oriented educational program that covers important diabetes topics

(continues)

CASE STUDY *(continued)*

such as pathophysiology, nutrition, and exercise. Maurice, a member of the team, suggests, “Let’s do our teaching with all the family members together in a group.” Lina, another team member, states, “We should separate the family members into similar age groups for the teaching—that way, we can better keep their interest.” You suggest that the team integrate Maurice’s and Lina’s suggestions and plan a total of five teaching sessions, with four of the sessions grouping participants according to developmental stages and the final session grouping families together. Participants range from 6 to 75 years of age.

1. Describe how you will determine the different age range groupings of the participants for the first four sessions. Explain the different age ranges, cognitive and psychosocial stages, and general characteristics of each group.
2. Choose two different developmental stage groupings and give examples of teaching strategies you will use with each group for the specific teaching sessions. Explain why you chose these strategies for the individuals with diabetes and their families.
3. What are some advantages to grouping participants by developmental stages? What are some disadvantages?

References

- Ackard, D. M., & Neumark-Sztainer, D. (2001). Health care information sources for adolescents: Age and gender differences on use, concerns, and needs. *Journal of Adolescent Health, 29*(3), 170–176.
- Ahroni, J. H. (1996). Strategies for teaching elders from a human development perspective. *Diabetes Educator, 22*(1), 47–52.
- Alberts, A., Elkind, D., & Ginsberg, S. (2007). The personal fable and risk-taking in early adolescence. *Journal of Youth and Adolescence, 36*(1), 71–76. doi:10.1007/s10964-006-9144-4.
- American Academy of Pediatrics Committee on Adolescence. (2016). Achieving quality health services for adolescents. *Pediatrics, 138*(2), e20161347.
- American Academy of Pediatrics Council on School Health. (2016). Role of the school nurse in providing school health services. *Pediatrics, 137*(6), e20160852.
- Ares, K., Kuhns, L. M., Dogra, N., & Karnik, N. (2015). Child mental health and risk behavior over time. In B. Kirkcaldy (Ed.), *Promoting psychological wellbeing in children and families* (pp. 135–153). New York: Palgrave Macmillan.
- Aronowitz, T. (2006). Teaching adolescents about adolescence: Experiences from an interdisciplinary adolescent health course. *Nurse Educator, 31*(2), 84–87.
- Banks, E. (1990). Concepts of health and sickness of preschool- and school-aged children. *Children’s Health Care, 19*(1), 43–48.
- Bara, B. G., Bucciarelli, M., & Johnson-Laird, P. N. (1995). Development of syllogistic reasoning. *American Journal of Psychology, 108*(2), 157–193.
- Barnes, L. P. (1995). Finding the “win/win” in patient/family teaching. *MCN: The American Journal of Maternal/Child Nursing, 20*(4), 229.
- Bedells, E., & Bevan, A. (2016). Role of nurses and parents caring for hospitalised children. *Nursing Children and Young People, 28*(2), 24–28.
- Behm, L., Wilhelmson, K., Falk, K., Eklund, K., Zidén, L., & Dahlin-Ivanoff, S. (2014). Positive health outcomes following health-promoting and disease preventive interventions for independent very old persons: Long-term results of the three-armed RCT elderly persons in the risk zone. *Archives of Gerontology and Geriatrics, 58*(3), 376–383.
- Bell, M. F., Bayliss, D. M., Glauert, R., Harrison, A., & Ohan, J. L. (2016). Chronic illness and developmental vulnerability at school entry. *Pediatrics, 137*(5), e20152475.
- Bennett, T., & Gaines, J. (2010). Believing what you hear: The impact of aging stereotypes upon the old. *Educational Gerontology, 36*(5), 435–445.
- Best, J. T. (2001). Effective teaching for the elderly: Back to basics. *Orthopaedic Nursing, 20*(3), 46–52.
- Billings, D., & Kowalski, K. (2004). Teaching learners from varied generations. *Journal of Continuing Education, 35*(3), 104–105.
- Boyd, M. D., Gleit, C. J., Graham, B. A., & Whitman, N. I. (1998). *Health teaching in nursing practice: A professional model* (3rd ed.). Norwalk, CT: Appleton & Lange.
- Brown, C., & Lewis, M. J. (2003). Psychosocial development in the elderly: An investigation into Erikson’s ninth stage. *Journal of Aging Studies, 17*, 415–426.
- Brown, S. L., Teufel, J. A., & Birch, D. A. (2007). Early adolescents’ perceptions of health and health literacy. *Journal of School Health, 77*(1), 7–15.

- Callans, K. M., Bleiler, C., Flanagan, J., & Carroll, D. L. (2016). The transitional experience of family caring for their child with a tracheostomy. *Journal of Pediatric Nursing, 31*(4), 397–403.
- Capezuti, E. (2014). It's a matter of trust: Nurses supporting family caregivers. *Geriatric Nursing, 35*, 154–155.
- Cauffman, E., & Steinberg, L. (2000). (Im)maturity of judgment in adolescence: Why adolescents may be less culpable than adults. *Behavioral Sciences & the Law, 18*, 741–760.
- Collins, J. (2004). Education techniques for lifelong learners. *RadioGraphics, 24*(5), 1483–1489.
- Conlan, J., Grabowski, S., & Smith, K. (2015, July 28). Adult learning—Emerging perspectives on learning, teaching, and technology. http://epltt.coe.uga.edu/index.php?title=Adult_Learning
- Covey, S. (1990). *The seven habits of highly effective people*. New York, NY: Simon & Schuster.
- Crandell, T. L., Crandell, C. H., & Vander Zanden, J. W. (2012). *Human development* (10th ed.). New York, NY: McGraw-Hill.
- Curran, M. K. (2014). Examination of the teaching styles of nursing professional development specialists, Part I: Best practices in adult learning theory, curriculum development, and knowledge transfer. *Journal of Continuing Education in Nursing, 45*(5), 233–240.
- Doak, C. C., Doak, L. G., & Root, J. H. (1996). *Teaching patients with low literacy skills* (2nd ed.). Philadelphia, PA: Lippincott.
- Donner, C. L., Levonian, C., & Slutsky, P. (2005). Move to the head of the class: Developing staff nurses as teachers. *Journal for Nurses in Staff Development, 21*(6), 277–283.
- Edelman, C. L., Mandle, C. L., Kudzma, E. C. (2013). *Health promotion throughout the life span*. St. Louis, MO: Elsevier.
- Elkind, D. (1984). Teenage thinking: Implications for health care. *Pediatric Nursing, 10*(6), 383–385.
- Erikson, E. H. (1963). *Childhood and society* (2nd ed.). New York, NY: Norton.
- Erikson, E. H. (1968). *Identity: Youth and crisis*. New York, NY: Norton.
- Erikson, E. H., & Erikson, J. M. (1998). *The life cycle completed*. New York, NY: Norton.
- Falvo, D. (2011). *Effective patient education: A guide to increased adherence* (4th ed.). Sudbury, MA: Jones & Bartlett.
- Farrand, L. L., & Cox, C. L. (1993). Determinants of positive health behavior in middle childhood. *Nursing Research, 42*(4), 208–213.
- Federal Interagency Forum on Aging-Related Statistics. (2016). *Older Americans 2016: Key indicators of well-being*. Washington, DC: U.S. Government Printing Office.
- Fishman, A. A. (2016). How generational differences will impact America's aging workforce: Strategies for dealing with aging Millennials, Generation X, and Baby Boomers. *Strategic HR Review, 15*(6), 250–257.
- Fry, R. (2016, April 25). Millennials overtake baby boomers as America's largest generation. *FactTank*. Pew Research Center. <http://www.pewresearch.org/fact-tank/2016/04/25/millennials-overtake-baby-boomers/>
- Gavan, C. S. (2003). Successful aging families: A challenge for nurses. *Holistic Nursing Practice, 17*(1), 11–18.
- Grey, M., Kanner, S., & Lacey, K. O. (1999). Characteristics of the learner: Children and adolescents. *Diabetes Educator, 25*(6), 25–33.
- Haggard, A. (1989). *Handbook of patient education*. Rockville, MD: Aspen.
- Havighurst, R. (1976). Human characteristics and school learning: Essay review. *Elementary School Journal, 77*, 101–109.
- Hayes, D. (2015). Child centred teaching and learning. In A. Hansen (Ed.), *Primary professional studies* (pp. 69–86). Los Angeles, CA: Sage.
- Heiney, S. P. (1991). Helping children through painful procedures. *American Journal of Nursing, 91*(11), 20–24.
- Hines, A. R., & Paulson, S. E. (2006). Parents' and teachers' perceptions of adolescent storm and stress: Relations with parenting and teaching styles. *Adolescence, 41*(164), 597–614.
- Hinkle, J. (2014). *Brunner & Suddarth's textbook of medical-surgical nursing* (13th ed.). Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.
- Hoffman, J. (2016, September 29). Teaching teenagers to cope with social stress. *New York Times*. <https://nyti.ms/2dnvWx3>
- Hussey, C. G., & Hirsh, A. M. (1983). Health education for children. *Topics in Clinical Nursing, 5*(1), 22–28.
- Jack, M.S. (1989). Personal fable: A potential explanation for risk-taking behavior in adolescents. *Journal of Pediatric Nursing, 4*(5), 334–338. <https://www.ncbi.nlm.nih.gov/pubmed/2614649>
- James, E., & Hughes, M. (2016, September 8). Embracing the role of family caregivers in the U.S. health system. *Health Affairs*. www.healthaffairs.org
- Kaakinen, J. R., Gedaly-Duff, V., Coehlo, D. P., & Hanson, S. M. H. (2010). *Family health care nursing*. Philadelphia, PA: F. A. Davis.
- Kail, R. V., & Cavanaugh, J. C. (2015). *Human development: A life-span view* (7th ed.). Boston, MA: Cengage Learning.
- Katz, J. R. (1997). Back to basics: Providing effective patient education. *American Journal of Nursing, 97*(5), 33–36.
- Kinkead, K. J., Miller, H., & Hammett, R. (2016). Adult perceptions of in-class collaborative problem solving as mitigation for statistics anxiety. *Journal of Continuing Higher Education, 64*(2), 101–111.
- Knowles, M. (1990). *The adult learner: A neglected species* (4th ed.). Houston, TX: Gulf Publishing.
- Knowles, M. S., Holton, E. F., & Swanson, R. A. (2015). *The adult learner: The definitive classic in adult education and human resource development* (8th ed.). London: Routledge: Taylor and Francis Group.
- Kochanek, K. D., Xu, J., Murphy, S. L., Minino, A. M., & Kung, H. (2011). Deaths: Final data for 2009. *National Vital Statistics Reports, 60*(3), 1–166.

- Koopman, H. M., Baars, R. M., Chaplin, J., & Zwiderman, K. H. (2004). Illness through the eyes of a child: The development of children's understanding of the causes of illness. *Patient Education and Counseling*, 55(3), 363–370.
- Kray, J., & Lindenberger, U. (2000). Adult age differences in task switching. *Psychology and Aging*, 15(1), 126–147.
- Lawson, P. J., & Flocke, S. A. (2009). Teachable moments for health behavior change: A concept analysis. *Patient Education and Counseling*, 76(1), 25–30.
- Leifer, G., & Hartston, H. (2013). *Growth and development across the lifespan: A health promotion focus (2nd ed.)*. St. Louis, MO: Saunders.
- London, M. C., Ladewig, P. W., Davidson, M., Ball, J. W., Bindler, R. C., & Cowen, K. J. (2017). *Maternal & child nursing care (5th ed.)*. Boston, MA: Pearson.
- Longtin, Y., Sax, H., Leape, L. L., Sheridan, S. E., Donaldson, L., & Pittet, D. (2010). Patient participation: Current knowledge and applicability to patient safety. *Mayo Clinic Proceedings*, 85(1), 53–62.
- Marin, A. M. (2010, Fall). *Concepts of illness among children of different ethnicities, socioeconomic backgrounds, and genders* (Unpublished master's thesis). San Diego State University, CA.
- Mauk, K. L. (2014). *Gerontological nursing: Competencies for care (3rd ed.)*. Burlington, MA: Jones & Bartlett Learning.
- McLeod, S. (2007). Lev Vygotsky. *Simply psychology*. <https://www.simplypsychology.org/vygotsky.html>
- Merriam, S. B., & Bierema, L. L. (2014). *Adult learning: Linking theory and practice*. San Francisco, CA: Jossey-Bass.
- Miller, M. A., & Stoeckel, P. (2016). *Client education: Theory and practice (2nd ed.)*. Burlington, MA: Jones and Bartlett Learning.
- Musinski, B. (1999). The educator as facilitator: A new kind of leadership. *Nursing Forum*, 34(1), 23–29.
- National Resource Center for Health and Safety in Child Care and Early Education. (2017, January 10). *Caring for our children: Health and safety education topics for children*. <http://cfoc.nrckids.org/StandardView/2.4.1.1>
- Newman, B. M., & Newman, P. R. (2015). *Development through life: A psychosocial approach*. (12th ed.). Stamford, CT: Cengage Learning.
- Ormrod, J. E. (2012). *Essentials of educational psychology: Big ideas to guide effective teaching (3rd ed.)*. Boston: Pearson.
- Orshan, S. A. (2008). *Maternity, newborn, and woman's health nursing: Comprehensive care across the lifespan*. Philadelphia, PA: Lippincott Williams & Wilkins.
- Oswalt, A. (2010). Jean Piaget's theory of cognitive development. <https://www.mentalhelp.net/articles/jean-piaget-s-theory-of-cognitive-development/>
- Packard, E. (2007). That teenage feeling. *Monitor on Psychology*, 38(4), 20. <http://www.apa.org/monitor/apr07/teenage.aspx>
- Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A., Afifi, R., Allen, N. B., . . . Viner, R. M. (2016). Our future: A Lancet commission on adolescent health and wellbeing. *Lancet*, 387(10036), 2423–2478.
- Perrin, E. C., Sayer, A. G., & Willett, J. B. (1991). Sticks and stones may break my bones . . . : Reasoning about illness causality and body functioning in children who have a chronic illness. *Pediatrics*, 88(3), 608–619.
- Phillips, L. D. (1999). Patient education: Understanding the process to maximize time and outcomes. *Journal of Intravenous Nursing*, 22(1), 19–35.
- Piaget, J. (1951). *Judgment and reasoning in the child*. London, England: Routledge & Kegan Paul.
- Piaget, J. (1952). *The origins of intelligence in children*. New York, NY: International Universities Press.
- Piaget, J. (1976). *The grasp of consciousness: Action and concept in the young child*. (S. Wedgwood, Trans.). Cambridge, MA: Harvard University Press.
- Pidgeon, V. A. (1977). Characteristics of children's thinking and implications for health teaching. *Maternal-Child Nursing Journal*, 6(1), 1–8.
- Pidgeon, V. (1985). Children's concepts of illness: Implications for health teaching. *Maternal-Child Nursing Journal*, 14(1), 23–35.
- Polan, E., & Taylor, D. (2015). *Journey across the lifespan: Human development and health promotion (5th ed.)*. Philadelphia, PA: F. A. Davis.
- Poster, E. C. (1983). Stress immunization: Techniques to help children cope with hospitalization. *Maternal-Child Nursing Journal*, 12(2), 119–134.
- Protheroe, N. (2007). How children learn. *Principal*, 86(5), 40–44.
- Rankin, S. H., & Stallings, K. D. (2001). *Patient education: Principles and practices (4th ed.)*. Philadelphia, PA: Lippincott.
- Raven, S. (2016). Elementary anatomy: Activities designed to teach preschool children about the human body. *Science and Children*, 53(9), 52–57.
- Reeber, B. J. (1992). Evaluating the effects of a family education intervention. *Rehabilitation Nursing*, 17(6), 332–336.
- Reinhard, S. C., Levine, C., & Samis, S. (2012). *Home alone: Family caregivers providing complex chronic care*. Washington, DC: AARP Public Policy Institute. <http://www.aarp.org/ppi>
- Rendon, D. C., Davis, D. K., Gioiella, E. C., & Tranzillo, M. J. (1986). The right to know, the right to be taught. *Journal of Gerontological Nursing*, 12(12), 36.
- Richmond, J. B., & Kotelchuck, M. (1984). Personal health maintenance for children. *Western Journal of Medicine*, 141(6), 816–823.
- Robnett, R. H., & Chop, W. (2015). *Gerontology for the health care professional (3rd ed.)*. Burlington, MA, Jones & Bartlett Learning.
- Ruholl, L. (2003, May 1). Tips for teaching the elderly. *Modern Medicine*. <http://www.modernmedicine.com/modern-medicine/content/tips-teaching-elderly>
- Santrock, J. W. (2017). *Life-span development (16th ed.)*. New York, NY: McGraw-Hill.

- Shatto, B., & Erwin, K. (2016). Moving on from Millennials: Preparing for Generation Z. *Journal of Continuing Education in Nursing, 47*(6), 253–254.
- Smith, A. (2014). *Older adults and technology used*. Pew Research Center. <http://www.pewzinternet.org/2014/04/03/older-adults-and-technology-use/>
- Snowman, J., & McCown, R. (2015). *Psychology applied to teaching* (14th ed.). Stanford, CA: Wadsworth/Cengage Learning.
- Steegen, S., & De Neys, W. (2012). Belief inhibition in children's reasoning: Memory-based evidence. *Journal of Experimental Child Psychology, 112*, 231–242.
- Taylor, K., Marienau, C., & Fiddler, M. (2000). *Developing adult learners: Strategies for teachers and trainers*. San Francisco, CA: Jossey-Bass.
- U.S. Department of Health and Human Services. (2014). *Healthy people 2020*. <https://www.healthypeople.gov/2020/topics-objectives>
- U.S. Department of Health and Human Services. (2016). *A profile of older Americans: 2016*. Washington, DC: Administration on Aging, Administration for Community Living. <https://www.acl.gov/sites/default/files/Aging%20and%20Disability%20in%20America/2016-Profile.pdf>
- Vulcan, B. (1984). Major coping behaviors of a hospitalized 3-year-old boy. *Maternal-Child Nursing Journal, 13*(2), 113–123.
- Weinrich, S. P., & Boyd, M. (1992). Education in the elderly. *Journal of Gerontological Nursing, 18*(1), 15–20.
- Whitener, L. M., Cox, K. R., & Maglich, S. A. (1998). Use of theory to guide nurses in the design of health messages for children. *Advances in Nursing Science, 20*(3), 21–35.
- Williams, K., & McGillicuddy-De Lisi, A. (1999). Coping strategies in adolescents. *Journal of Applied Developmental Psychology, 20*(4), 537–549. <http://www.sciencedirect.com/science/article/pii/S0193397399000258>
- Zimmer-Gembeck, M., & Skinner, E. A. (2008). Adolescents coping with stress: Development and diversity. *Prevention Researcher, 15*(4), 3–7.