Chapter 2 Class Notes

Principles of Growth and Development

I. Basic Patterns and Concepts
   a. Growth
      i. Refers to specific physical changes and increases in the child’s actual size
         1. Additional numbers of cells, as well as enlargement of existing cells, are responsible for the observable increases in a child’s:
            a. Height
            b. Weight
            c. Head circumference
            d. Shoe size
            e. Length of arms and legs
            f. Body shape
      2. Changes in growth lend themselves to direct and fairly reliable measurement
   ii. Growth process continues throughout most of the life span, although the rate varies according to age
      1. Even into old age, the body continues to repair and replace its cells (although much less vigorously)
   b. Development
      i. Refers to an increase in complexity—a change from the relatively simple to the more complicated and detailed
         1. Involves an orderly progression along a continuum or pathway
            a. Little by little, knowledge, behaviors, and skills become increasingly more refined and expanded
      2. Sequence is basically the same for all children, but the rate of development shows great variability from child to child
      ii. Rate and level of development are closely related to physiological maturity of the nervous, muscular, and skeletal systems
         1. Also influenced by a person’s unique:
            a. Heredity
            b. Environmental factors
            c. Culture
            d. Family values
         2. These collective factors account for the wide range of variations observed in individual children’s developmental progress
   iii. Developmental milestones
1. Major markers or points of accomplishment are referred to as developmental milestones in tracking the emergence of motor, social, cognitive, and language skills
   a. Represent behaviors that appear in somewhat orderly steps and within fairly predictable age ranges for typically developing children
   b. When children do not achieve one or more developmental milestones within a reasonable time frame, they should be observed carefully and systematically by a child development specialist or health care provider

2. Sitting, walking, and talking are examples of developmental milestones that depend on biological maturation, yet these skills do not develop independently of the environment

iv. Sequences of development
   1. Comprised of predictable steps along a developmental pathway common to the majority of children
      a. Children must be able to roll over before they can sit and sit before they can stand
      b. Critical consideration is the order in which children acquire these developmental skills, not their age in months and years
      c. Appropriate sequence in each area of development is an important indication that the child is moving steadily forward along a sound developmental continuum

2. Developmental progress is rarely smooth and even
   a. Irregularities, such as periods of stammering or the onset of a food jag, often characterize children’s development
   b. Regression, or taking a step or two backward now and then, is perfectly normal

v. Age-level expectancies or norms
   1. Age-level expectancies can be thought of as chronological or age-related levels of development
      a. Investigators such as Gesell and Piaget conducted hundreds of systematic observations of infants and children of various ages
         i. Analyses of their findings represent the average or typical age at which many specifically described developmental skills are acquired by most children in a given culture
ii. This average age is often called the norm; thus a child’s development may be described as at the norm, above the norm, or below the norm.

2. Age-level expectancies are most likely to represent a range and never an exact point in time when specific skills will be achieved
   a. Profiles in this text (age expectancies for specific skills) should always be interpreted as approximate midpoints on a range of months (as in the example on walking, from eight to twenty months with the midpoint at fourteen months)
      i. It is sequence and not age that is the important factor in evaluating a child’s progress
      ii. In real life, there is probably no child who is truly typical in every way
   b. Range of skills and the age at which skills are acquired show great variation
      i. No two children grow and develop at exactly the same rate, nor do they perform in exactly the same way

vi. Organization and reorganization
   1. Development can be thought of as a series of phases
      a. Spurts of rapid growth and development often are followed by periods of disorganization
         i. Then the child seems to recover and move into a period of reorganization
      b. Not uncommon for children to demonstrate behavior problems or even regression during these periods
         i. Reasons vary
         ii. Usually, these periods are short-lived
   c. Brain growth and development
      i. Brain maturation lays the foundation for all other aspects of a child’s development
         1. Growth and development of the fetal brain is rapid, exceedingly complex, and influenced by a combination of maternal environment and genetics
            a. Children’s brains continue to increase in size and composition as a direct result of experiences
            b. Health care providers measure an infant’s head circumference during well-baby checkups to monitor the brain’s continued growth (not too fast, not too slow)
2. Early on, there are many more brain cells (neurons) than the child will need
   a. Connections between cells continue to form as the result of new and repetitive learning experiences
3. Gradually, through pruning, active cells and neural connections are strengthened by allowing those that are unused to drop away
4. Important to remember that both genetic factors and learning experiences play a significant role in fostering brain growth and development

ii. Current research also reveals amazing information about the relationship between the brain and language development
1. Infants not only take in the sounds of the language they are hearing, but they replicate them complete with a dialect
   a. Dialect is maintained without change for years to come
   b. It is as if the brain will not easily sever connections made in the earliest months and years of life, regardless of subsequent changes in language environments
d. Typical growth and development
   i. Terms “typical” and “normal” are often used interchangeably to describe the acquisition of certain skills and behaviors according to a predictable rate and sequence
      1. Range of typical behaviors within each developmental domain is broad and includes mild variations and simple irregularities
   2. Use of these terms also oversimplifies the concept
      a. Normal or typical development implies:
         i. An integrated process governing change in size, neurological structure, and behavioral complexity
         ii. A cumulative or “building block” process in which each new aspect of growth or development includes and builds on earlier changes; each accomplishment is necessary to acquisition of the next set of skills
         iii. A continuous process of give and take (reciprocity) between the child and the environment, each changing the other in a variety of ways
ii. Interrelatedness of developmental domains
   1. Discussions about development usually focus on several major domains:
2. No single area develops independently of the others
   a. Every skill, whether simple or complex, requires a mix of developmental abilities
   b. To be a preferred playmate, a child must have many skills, all of them interrelated and interdependent
   c. For example, a four-year-old, should be able to:
      i. Run, jump, climb, and build with blocks (good motor skills)
      ii. Ask for, explain, and describe what is going on (good language skills)
      iii. Recognize likenesses and differences among play materials and so select appropriate materials in a joint building project (good perceptual skills)
      iv. Problem-solve, conceptualize, and plan ahead in cooperative play ventures (good cognitive skills)

iii. Temperament
   1. Refers to an individual’s responses to everyday happenings
   2. Infants and young children differ in their activity levels, alertness, irritability, soothability, restlessness, and willingness to cuddle
   3. Such qualities often lead to labels:
      a. The “easy” child
      b. The “difficult” child
      c. The “slow-to-warm” child
   4. These characteristics (and labels) seem to have a definite effect on how family and teachers respond to the child.
      a. Their responses, in turn, reinforce the child’s self-perceptions

iv. Gender roles
   1. Early in life, young children learn gender roles appropriate to their culture
   2. Each boy and girl develops a set of behaviors, attitudes, and commitments that are defined, directly or indirectly, as acceptable male or female attributes
3. Each child plays out gender roles according to everyday experiences
4. Child’s sense of maleness or femaleness is also influenced by:
   a. Genetics
   b. Playmates and play opportunities
   c. Toys
   d. Media exposure
   e. Especially adult role models (families, neighbors, teachers)

v. Ecological factors
   1. Ecology – environmental influence of family and home, community, and society
      a. Affects all aspects of development
   2. Examples of powerful ecological factors:
      a. Income level; adequacy of food and shelter
      b. Cultural values and practices
      c. General health and nutrition; availability of pre- and postnatal care for mother and child
      d. Families’ education level (mother’s level of education is a major predictor of a child’s school achievement)
      e. Families’ understanding of obligations and responsibilities before and after the infant’s birth
      f. Family communication and child-rearing practices (loving or punishing, nurturing or neglectful); family stress
      g. Family structure—single- or two-parent, blended, or extended family; grandparent with primary parenting role; nontraditional household; foster homes

3. Differences in the way each of these factors are experienced ultimately results in a child being unlike any other child

vi. Transactional patterns of development
   1. From birth, children influence the behavior of their adult caretakers (e.g., families, teachers)
      a. In turn, these same adults exert a strong influence children’s behavior and development
      b. This complex transactional process between children, their families, and daily events is ongoing and continually changing and results in developmental experiences and outcomes that are often quite different for each child
2. Infants and young children thrive when adults respond promptly and positively, at least a fair share of the time, to appropriate things a child says and does
   a. Research indicates that children develop healthier self-concepts, as well as earlier and better language, cognitive, and social skills when raised by responsive adults

   e. Children at-risk
      i. Some children are born into conditions that may be harmful to their development or interfere with its progress
         1. These children are often described as being “at-risk”
         2. Premature birth and low weight increase a child’s vulnerability and chances of developing physical problems, learning disabilities, and/or behavioral problems
            a. Typically the result of:
               i. Poor maternal health
               ii. Inadequate prenatal care
               iii. Substance abuse during pregnancy
               iv. Poverty
               v. Maternal age outside the “normal” range (very young teenagers and women in their middle forties and older)
      3. Children who are exposed to abuse or neglect are also considered to be at high risk for experiencing developmental problems

   f. Atypical growth and development
      i. Term “atypical” is used to describe children with developmental differences, deviations, or marked delays—children whose development appears to be incomplete or inconsistent with typical patterns and sequences
         1. Many causes of atypical development, including:
            a. Genetic errors
            b. Poor health and nutrition
            c. Injury
            d. Too few opportunities to learn
      ii. Abnormal development in one area may or may not interfere with development in other areas
         1. However, the child with developmental delays may perform in one or more areas of development like a much younger child
      iii. Term “developmental deviation” describes an aspect of development that is different from what is expected in typical development
         iv. One must always be cautious not to make judgments about a child’s development without first being sensitive to cultural,
ethnic, socioeconomic, language, and gender variations that may indeed account for any differences

1. Must also be remembered that a child who experiences any type of developmental problem is most importantly and foremost a child with the same basic needs as all other children

II. Developmental Domains
   a. Six major domains or developmental areas:
      i. Physical development and growth
         1. Governs the major tasks of infancy and childhood
         2. Understanding the patterns and sequences of physical development is essential to being effective parents, teachers, and caregivers
            a. It is healthy growth and development, not adult pressure or coaching, that makes new learning and behavior possible
            b. Adult pressure cannot hurry the process and in fact is more likely to be counterproductive
         3. Governed by heredity and greatly influenced by environmental conditions, physical development and growth is a highly individualized process
            a. Responsible for changes in body shape and proportion as well as overall body size
            b. Growth (especially brain growth) occurs more rapidly during prenatal development and the first year than at any other time
            c. Growth is also intricately related to progress in other developmental areas
               i. Responsible for:
                  1. Increasing muscle strength necessary for movement
                  2. Coordinating vision and motor control
                  3. Synchronizing neurological and muscular activity in gaining bladder and bowel control
            d. Child’s growth is closely linked to nutritional status and ethnicity
               i. State of a child’s physical development serves as a reliable index of his or her general health and well-being
               ii. Physical growth and development also exert a direct influence on determining whether children are likely to achieve their full cognitive and academic potential
   ii. Motor development
1. Child’s ability to move about and control the various body parts is the major function of this domain
   a. Refinements in motor development depend on:
      i. Maturation of the brain
      ii. Input from the sensory system
      iii. Increased bulk and number of muscle fibers
      iv. Healthy nervous system
      v. Opportunities to practice
   b. This holistic approach contrasts markedly with the way early developmentalists, such as Gesell, viewed the emergence of motor skills
      i. They described a purely maturational process, governed almost entirely by instructions on the individual’s genetic code (nature)
      ii. Today’s psychologists consider such an explanation misleading and incomplete
         1. Their research indicates that when young children show an interest, for example, in using a spoon to feed themselves, it is always accompanied by:
            a. Improved eye–hand coordination (to direct the spoon to the mouth)
            b. Motivation (liking and wanting to eat what is in the bowl)
            c. Drive to imitate what others are doing
   2. Environment, that is, experience, plays a major role in the emergence of new motor skills (nurture)
   3. Motor activity during very early infancy is purely reflexive and disappears as the child develops voluntary control over his or her movements
      a. If these earliest reflexes do not phase out at appropriate times in the developmental sequence, it may be an indication of neurological problems
         i. In such cases, medical evaluation should be sought
   3. Three principles govern motor development:
      a. Cephalocaudal: bone and muscular development that proceeds from head to toe
         i. Infant first learns to control muscles that support the head and neck, then the trunk, and later those that allow reaching
ii. Muscles for walking develop last

b. Proximodistal: bone and muscular development that begins with improved control of muscles closest to the central portion of the body, gradually extending outward and away from the midpoint to the extremities (arms and legs)

i. Control of the head and neck is achieved before the child is able to pick up an object with thumb and forefinger (pincer grasp or finger–thumb opposition)

c. Refinement: muscular development that progresses from the general to the specific in both gross motor and fine motor activities

i. In the refinement of a gross motor skill, for example, a two-year-old may attempt to throw a ball but achieves little distance or control

1. Same child, within a few short years, may pitch a ball over home plate with speed and accuracy

2. As for a fine motor skill, compare the self-feeding efforts of a toddler with those of an eight-year old who is motivated (for whatever reason) to display good table manners

iii. Perpetual development

1. This is the increasingly complex ways the child makes use of information received through the senses:
   a. Sight
   b. Hearing
   c. Touch
   d. Smell
   e. Taste
   f. Body position

2. Might be said that perception is a significant factor that determines and orchestrates the functioning of the various senses, singly or in combination

   a. Perceptual process also enables the individual to focus on what is relevant at a particular moment and to screen out whatever is irrelevant

   i. What details are important?
   ii. Which differences should be noted?
   iii. Which should be ignored?

3. Three aspects of perceptual development must be understood:

   a. Multisensory
i. Information is generally received through more than one sense organ at a time

b. Habituation
   i. Refers to a person’s ability to concentrate on a specific task while ignoring everything else

c. Sensory integration
   i. Involves translating sensory information into functional behavior

4. Basic perceptual system is in place at birth
   a. Through experience, learning, and maturation it develops into a smoothly coordinated operation for processing complex information from multiple senses
   b. Because of this mechanism, children can sort shapes according to size and color and make fine discriminations or hear and distinguish the difference among initial sounds in rhyming words, such as rake, cake, and lake
   c. Sensory system also enables each of us to respond appropriately to all kinds of messages and signals

iv. Cognitive development
   1. Addresses the expansion of a child’s intellect or mental abilities
   2. Cognition involves recognizing, processing, and organizing information and then using the information appropriately
      a. Cognitive process includes such mental activities as:
         i. Discovering
         ii. Interpreting
         iii. Sorting
         iv. Classifying
         v. Remembering
      b. In preschool and school-age children it means:
         i. Evaluating ideas
         ii. Making judgments
         iii. Solving problems
         iv. Understanding rules and concepts
         v. Thinking ahead
         vi. Visualizing possibilities or consequences

3. Cognitive development is an ongoing process of interaction between the child and his or her perceptual view of objects or events in the environment
a. Probably safe to say that neither cognitive nor perceptual development can proceed independently of each other

4. Development of cognition begins with the primitive or reflexive behaviors that support survival and early learning in the healthy newborn
   a. Early behaviors led developmental psychologists to ponder the many striking similarities in how infants and children learn
   b. Based on repeated observations of such similarities during the 1950’s, the Swiss psychologist Jean Piaget formulated his four stages of cognitive development:
      i. Sensorimotor
      ii. Preoperational
      iii. Concrete operations
      iv. Formal operations

5. Cognitive skills always overlap with both perceptual development and motor involvement
   a. Early in the second year the emergence of speech and language adds yet another dimension

v. Language development
   1. Language is often defined as a system of symbols, spoken, written, and gestural (waving, smiling, scowling, cowering), that allows us to communicate with one another
      a. Normal language development is regular and sequential and depends on maturation as well as learning opportunities
      b. First year of life is called the prelinguistic or prelanguage phase
         i. Child is totally dependent on body movements and sounds such as crying and laughing to convey needs and feelings
      c. Second year begins the linguistic or language stage, in which speech becomes the primary mode for communicating
         i. Over the next three or four years, the child learns to put words together to form simple and then compound sentences that make sense to others because the child has learned the appropriate grammatical constructions
      d. Between five and seven years of age, most children have become skilled at conveying their thoughts and ideas verbally
Many children at this age have a vocabulary of 14,000 words or more, which may double or triple during middle childhood, depending on a child’s language environment.

2. Most children seem to understand a variety of concepts and relationships long before they have the words to describe them
   a. Referred to as receptive language, which precedes expressive language (the ability to speak words to describe and explain)
   b. Speech and language development is closely related to the child’s general cognitive, social, perceptual, and neuromuscular development
   c. Language development and the rules that address how it is to be used are also influenced by the type of language children hear in their homes, schools, and community

vi. Social and emotional development
   1. Broad area that covers how children feel about themselves and their relationships with others
      a. Refers to children’s behaviors, the way in which they respond to play and work activities and their attachments to family members, caregivers, teachers, and friends. Gender roles, temperament, independence, morality, trust, acceptance of rules and social expectations are also important components of this developmental area
   2. In describing personal and social development, it must be remembered that children develop at different rates
      a. Individual differences in genetic and cultural background, health status, living arrangements, family interactions and daily experiences within the larger community continuously shape and reshape children’s development
         i. Consequently, no two children can ever be exactly alike, not in social and emotional development or in any other developmental area

III. Age Divisions
   a. Many child developmentalists use these age divisions when describing significant changes within development areas:
      i. Infancy
         1. Birth to one month
         2. 1-4 months
         3. 4-8 months
4. 8-12 months
   ii. Toddlerhood
       1. 12-24 months
       2. 24-36 months
   iii. Early childhood
       1. 3-5 years
       2. 6-8 years
   iv. Middle childhood
       1. 9-12 years
b. Age divisions are to be used with extreme caution and great flexibility when dealing with children
   i. Based on the average achievements, abilities, and behaviors of large numbers of children at various stages in development
   ii. Great variation from one child to another
       1. It is the sequential acquisition of developmental tasks, not age, that is the major index to healthy development

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