B.Sc PSYCHOLOGY

5th SEM CORE COURSE

UNIVERSITY OF CALICUT

PSY5B03-DEVELOPMENTAL PSYCHOLOGY -I

2019 ADMISSION

Prepared by

Dhanya Nair

Assistant Professor

Department of Psychology

CPA College of Global Studies, Puthanathani

COURSE CODE	**PSY5B03**
TITLE OF THE COURSE	**DEVELOPMENTAL PSYCHOLOGY -I**
SEMESTER IN WHICH THE COURSE TO BE TAUGHT	**5TH**
NO. OF CREDITS	**3**
NO. OF CONTACT HOURS	**48 (3hrs/week)**

Objectives of the course:

- To study human development in Psychological Perspectives
- To create awareness about major Psychological changes along with physical and cognitive development.

- **Course Details**

MODULE NO.	NAME OF MODULE	MODULE HOURS
1	Introduction and theories to Life Span Development	10hrs
2	Prenatal Development	14hrs
3	Physical Development	10hrs
4	Cognitive Development	14hrs

Module 1: Introduction and theories to Life Span Development

Historical foundation of developmental psychology.

- human development Scientific study of processes of change and stability throughout the human life span.
- life-span development Concept of human development as a lifelong process, which can be studied scientifically
- As the field of human development became a scientific discipline, its goals evolved to include description, explanation, prediction, and intervention.
- The scientific study of human development is ever evolving.
- The questions that developmental scientists seek to answer, the methods they use, and the explanations they propose are more sophisticated and more varied than they were even twenty-five years ago.
- These shifts reflect progress in understanding as new investigations build on or challenge those that went before.
- They also reflect advances in technology. Sensitive instruments that measure eye movements, heart rate, blood pressure, muscle tension, and the like are turning up intriguing connections between biological functions and childhood intelligence.
- Digital technology and computers allow investigators to scan infants' facial expressions for early signs of emotions and to analyse how mothers and babies communicate.
- Advances in brain imaging make it possible to probe the mysteries of temperament, to pinpoint the sources of logical thought, and to compare a normally aging brain with the brain of a person with dementia.
- Almost from the start, developmental science has been interdisciplinary.
- Today students of human development draw collaboratively from a wide range of disciplines, including psychology, psychiatry, sociology, anthropology, biology, genetics (the study of inherited characteristics), family science (the interdisciplinary study of family relations), education, history, and medicine.
- Developmental scientists study processes of change and stability in all domains, or aspects, of development and throughout all periods of the life span.
- Developmental scientists study three major domains: physical, cognitive, and psychosocial.

- Growth of the body and brain, sensory capacities, motor skills, and health are parts of physical development.
- Learning, attention, memory, language, thinking, reasoning, and creativity make up cognitive development.
- Emotions, personality, and social relationships are aspects of psychosocial development

Periods of the Life Span

- social construction A concept or practice that may appear natural and obvious to those who accept it, but that in reality is an invention of a particular culture or society
- There is no objectively definable moment when a child becomes an adult or a young person becomes old. In fact, the concept of childhood itself can be viewed as a social construction. Some evidence indicates that children in earlier times were regarded and treated much like small adults.
- The concept of adolescence as a period of development in industrial societies is quite recent. Until the early twentieth century, young people in the United States were considered children until they left school, married or got a job, and entered the adult world. By the 1920s, with the establishment of comprehensive high schools to meet the needs of a growing economy and with more families able to support extended formal education for their children, the teenage years became a distinct period of development (Keller, 1999).
- a sequence of eight periods generally accepted in Western industrial societies. After describing the crucial changes that occur in the first period, before birth, we trace all three domains of development through infancy and toddlerhood, early childhood, middle childhood, adolescence, young adulthood, middle adulthood, and late adulthood.

Table 1-1 Typical Major Developments in Eight Periods of Human Development

Age Period	Physical Developments	Cognitive Developments	Psychosocial Developments
Prenatal Period (conception to birth)	Conception occurs by normal fertilization or other means. The genetic endowment interacts with environmental influences from the start. Basic body structures and organs form; brain growth spurt begins. Physical growth is the most rapid in the life span. Vulnerability to environmental influences is great.	Abilities to learn and remember and to respond to sensory stimuli are developing.	Fetus responds to mother's voice and develops a preference for it.
Infancy and Toddlerhood (birth to age 3)	All senses and body systems operate at birth to varying degrees. The brain grows in complexity and is highly sensitive to environmental influence. Physical growth and development of motor skills are rapid.	Abilities to learn and remember are present, even in early weeks. Use of symbols and ability to solve problems develop by end of second year. Comprehension and use of language develop rapidly.	Attachments to parents and others form. Self-awareness develops. Shift from dependence toward autonomy occurs. Interest in other children increases.
Early Childhood (ages 3 to 6)	Growth is steady; appearance becomes more slender and proportions more adultlike. Appetite diminishes, and sleep problems are common. Handedness appears; fine and gross motor skills and strength improve.	Thinking is somewhat egocentric, but understanding of other people's perspectives grows. Cognitive immaturity results in some illogical ideas about the world. Memory and language improve. Intelligence becomes more predictable. Preschool experience is common, and kindergarten experience is more so.	Self-concept and understanding of emotions become more complex; self-esteem is global. Independence, initiative, and self-control increase. Gender identity develops. Play becomes more imaginative, more elaborate, and usually more social. Altruism, aggression, and fearfulness are common. Family is still the focus of social life, but other children become more important.
Middle Childhood (ages 6 to 11)	Growth slows. Strength and athletic skills improve. Respiratory illnesses are common, but health is generally better than at any other time in the life span.	Egocentrism diminishes. Children begin to think logically but concretely. Memory and language skills increase. Cognitive gains permit children to benefit from formal schooling. Some children show special educational needs and strengths.	Self-concept becomes more complex, affecting self-esteem. Coregulation reflects gradual shift in control from parents to child. Peers assume central importance.

Age Period	Physical Developments	Cognitive Developments	Psychosocial Developments
Adolescence (ages 11 to about 20)	Physical growth and other changes are rapid and profound. Reproductive maturity occurs. Major health risks arise from behavioral issues, such as eating disorders and drug abuse.	Ability to think abstractly and use scientific reasoning develops. Immature thinking persists in some attitudes and behaviors. Education focuses on preparation for college or vocation.	Search for identity including sexual identity, becomes central. Relationships with parents are generally good. Peer group may exert a positive or negative influence.
Emerging and Young Adulthood (ages 20 to 40)	Physical condition peaks, then declines slightly. Lifestyle choices influence health.	Thought and moral judgments become more complex. Educational and occupational choices are made, sometimes after period of exploration.	Personality traits and styles become relatively stable, but changes in personality may be influenced by life stages and events. Intimate relationships and personal lifestyles are established but may not be lasting. Most people marry, and most become parents.
Middle Adulthood (ages 40 to 65)	Slow deterioration of sensory abilities, health, stamina, and strength may begin, but individual differences are wide. Women experience menopause.	Mental abilities peak; expertise and practical problem-solving skills are high. Creative output may decline but improve in quality. For some, career success and earning powers peak; for others, burnout or career change may occur.	Sense of identity continues to develop; midlife transition may occur. Dual responsibilities of caring for children and parents may cause stress. Launching of children leaves empty nest.
Late Adulthood (age 65 and over)	Most people are healthy and active, although health and physical abilities generally decline. Slowing of reaction time affects some aspects of functioning.	Most people are mentally alert. Although intelligence and memory may deteriorate in some areas, most people find ways to compensate.	Retirement from workforce may occur and may offer new options for use of time. People develop more flexible strategies to cope with personal losses and impending death. Relationships with family and close friends can provide important support. Search for meaning in life assumes central importance.

- Growth and development
- all normal human beings, they must also consider individual differences in characteristics, influences, and developmental outcomes. People differ in gender, height, weight, and body build; in health and energy level; in intelligence; and in temperament, personality, and emotional reactions. The contexts of their lives differ too: the homes, communities, and societies they live in, the relationships they have, the schools they go to (or whether they go to school at all), and how they spend their free time.
- heredity Inborn traits or characteristics inherited from the biological parents
- environment Totality of nonhereditary, or experiential, influences on development.

- maturation Unfolding of a natural sequence of physical and behavioral changes
- Contexts of Development
- nuclear family Two-generational kinship, economic, and household unit consisting of one or two parents and their biological children, adopted children, or stepchildren.
- extended family Multigenerational kinship network of parents, children, and other relatives, sometimes living together in an extended-family household
- socioeconomic status (SES) Combination of economic and social factors describing an individual or family, including income, education, and occupation.
- risk factors Conditions that increase the likelihood of a negative developmental outcome
- culture A society's or group's total way of life, including customs, traditions, beliefs, values, language, and physical products— all learned behavior, passed on from parents to children
- ethnic group A group united by ancestry, race, religion, language, and/or national origins, which contribute to a sense of shared identity
- ethnic gloss Overgeneralization about an ethnic or cultural group that obscures differences within the group
- Normative and Nonnormative Influences
- normative Characteristic of an event that occurs in a similar way for most people in a group.
- cohort A group of people born at about the same time
- historical generation A group of people strongly influenced by a major historical event during their formative period.
- nonnormative Characteristic of an unusual event that happens to a particular person or a typical event that happens at an unusual time of life.
- imprinting Instinctive form of learning in which, during a critical period in early development, a young animal forms an attachment to the first moving object it sees, usually the mother
- critical period Specific time when a given event or its absence has a specific impact on development.
- plasticity Range of modifiability of performance
- sensitive periods Times in development when a person is particularly open to certain kinds of experiences
- Different Theories of development (Brief):
- theory Coherent set of logically related concepts that seeks to organize, explain, and predict data.
- hypotheses Possible explanations for phenomena, used to predict the outcome of research

- mechanistic model Model that views human development as a series of predictable responses to stimuli.
- organismic model Model that views human development as internally initiated by an active organism and as occurring in a sequence of qualitatively different stages.
- quantitative change Change in number or amount, such as in height, weight, or the size of vocabulary
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- Perspective
- Psychoanalytic-Freud's psychosexual theory- Behavior is controlled by powerful unconscious urges. & Erikson's psychosocial theory- Personality is influenced by society and develops through a series of crises
- Learning- Behaviorism, or traditional learning theory (Pavlov, Skinner, Watson)- People are responders; the environment controls behavior & Social learning (social cognitive) theory (Bandura)- Children learn in a social context by observing and imitating models. Children are active contributors to learning.
- Cognitive- Piaget's cognitive-stage theory-Qualitative changes in thought occur between infancy and adolescence. Children are active initiators of development.
  Vygotsky's sociocultural theory- Social interaction is central to cognitive development
  Information-processing theory- Human beings are processors of symbols.
- Contextual- Bronfenbrenner's bioecological theory- Development occurs through interaction between a developing person and five surrounding, interlocking contextual systems of influences, from microsystem to chronosystem
- Evolutionary/ sociobiological- Bowlby's attachment theory- Human beings have the adaptive mechanisms to survive; critical or sensitive periods are stressed; evolutionary and biological bases for behavior and predisposition toward learning are important
- Perspective 1: Psychoanalytic (Freud)
- psychoanalytic perspective View of human development as being shaped by unconscious forces.
- psychosexual development In Freudian theory, an unvarying sequence of stages of childhood personality development in which gratification shifts from the mouth to the anus and then to the genitals
- three hypothetical parts of the personality: the id, the ego, and the superego and its principles

- According to Freud, if children receive too little or too much gratification in any of these stages, they are at risk of fixation —an arrest in development that can show up in adult personality
- According to Freud, a key event in psychosexual development occurs in the phallic stage of early childhood. Boys develop sexual attachment to their mothers, and girls to their fathers, and they have aggressive urges toward the same-sex parent, whom they regard as a rival. Freud called these developments the Oedipus and Electra complexes.
- Oral (birth to 12–18 months). Baby's chief source of pleasure involves mouth-oriented activities (sucking and feeding).
- Anal (12–18 months to 3 years). Child derives sensual gratification from withholding and expelling feces. Zone of gratification is anal region, and toilet training is important activity
- Phallic (3 to 6 years). Child becomes attached to parent of the other sex and later identifies with same-sex parent. Superego develops. Zone of gratification shifts to genital region.
- Latency (6 years to puberty). Time of relative calm between more turbulent stages.
- Genital (puberty through adulthood). Reemergence of sexual impulses of phallic stage, channeled into mature adult sexuality
- Psychosocial Stages (Erikson)
- psychosocial development In Erikson's eight-stage theory, the socially and culturally influenced process of development of the ego, or self.
- Basic trust versus mistrust (birth to 12–18 months). Baby develops sense of whether world is a good and safe place. Virtue: hope
- Autonomy versus shame and doubt (12–18 months to 3 years). Child develops a balance of independence and self-sufficiency over shame and doubt. Virtue: will
- Initiative versus guilt (3 to 6 years). Child develops initiative when trying out new activities and is not overwhelmed by guilt. Virtue: purpose
- Industry versus inferiority (6 years to puberty). Child must learn skills of the culture or face feelings of incompetence. Virtue: skill.
- Identity versus identity confusion (puberty to young adulthood). Adolescent must determine own sense of self ("Who am I?") or experience confusion about roles. Virtue: fidelity
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- Generativity versus stagnation (middle adulthood). Mature adult is concerned with establishing and guiding the next generation or else feels personal impoverishment. Virtue: care.

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- social learning
- learning perspective View of human development which holds that changes in behavior result from experience or from adaptation to the environment.
- Learning theorists have helped to make the study of human development more scientific. Their terms are defined precisely, and their theories can be tested in the laboratory. Two important learning theories are behaviorism and social learning theory
- Behaviorist
- behaviorism Learning theory that emphasizes the predictable role of environment in causing observable behavior.
- They hold that human beings at all ages learn about the world the same way other organisms do: by reacting to conditions, or aspects of their environment, that they find pleasing, painful, or threatening.
- Behavioral research focuses on associative learning, in which a mental link is formed between two events. Two kinds of associative learning are classical conditioning and operant conditioning .
- Classical Conditioning The Russian physiologist Ivan Pavlov (1849–1936) devised experiments in which dogs learned to salivate at the sound of a bell that rang at feeding time. These experiments were the foundation for classical conditioning , in which a response (in this case, salivation) to a stimulus (the bell) is evoked after repeated association with a stimulus that normally elicits the response (food)
- classical conditioning Learning based on association of a stimulus that does not ordinarily elicit a particular response with another stimulus that does elicit the response.
- The American behaviorist John B. Watson (1878–1958) applied such stimulusresponse theories to children, claiming that he could mold any infant in any way he chose.
- he taught an 11-month-old baby known as “Little Albert”- Albert was exposed to a loud noise just as he was about to stroke a furry white rat.
- operant conditioning Learning based on association of behavior with its consequences.
- reinforcement In operant conditioning, a process that strengthens and encourages repetition of a desired behavior.
- punishment In operant conditioning, a process that weakens and discourages repetition of a behavior

- Behavior modification, or behavior therapy, is a form of operant conditioning used to gradually eliminate undesirable behavior or to instill positive behavior. It is particularly effective among people with special needs, mental or emotional disabilities, or eating disorders.
- Social Learning (Social Cognitive) Theory
- social learning theory Theory that behaviors are learned by observing and imitating models. Also called social cognitive theory .
- The American psychologist Albert Bandura (b. 1925) developed many of the principles of social learning theory. Whereas behaviorists see the environment, acting on the person, as the chief impetus for development, Bandura (1977, 1989; Bandura & Walters, 1963) suggests that the impetus for development is bidirectional. Bandura called this concept reciprocal determinism—the person acts on the world as the world acts on the person
- observational learning Learning through watching the behavior of others.
- self-efficacy Sense of one's capability to master challenges and achieve goals.
- COGNITIVE
- The cognitive perspective focuses on thought processes and the behavior that reflects those processes. This perspective encompasses both organismic and mechanistically influenced theories. It includes the cognitive-stage theory of Piaget and Vygotsky's sociocultural theory of cognitive development. It also includes the informationprocessing approach and neo-Piagetian theories, which combine elements of information-processing theory and Piagetian theory.
- cognitive perspective View that thought processes are central to development
- Jean Piaget's Cognitive-Stage Theory Our understanding of how children think owes a great deal to the work of the Swiss theoretician Jean Piaget (1896–1980).
- cognitive-stage theory Piaget's theory that children's cognitive development advances in a series of four stages involving qualitatively distinct types of mental operations.
- organization Piaget's term for the creation of categories or systems of knowledge.
- schemes Piaget's term for organized patterns of thought and behavior used in particular situations.
- adaptation Piaget's term for adjustment to new information about the environment, achieved through processes of assimilation and accommodation.
- assimilation Piaget's term for incorporation of new information into an existing cognitive structure.

- assimilation Piaget's term for incorporation of new information into an existing cognitive structure.
- equilibration Piaget's term for the tendency to seek a stable balance among cognitive elements; achieved through a balance between assimilation and accommodation.
- Vygotsky
- The Russian psychologist Lev Semenovich Vygotsky (1896–1934) focused on the social and cultural processes that guide children's cognitive development. Vygotsky's (1978) sociocultural theory ,
- sociocultural theory Vygotsky's theory of how contextual factors affect children's development.
- zone of proximal development (ZPD) Vygotsky's term for the difference between what a child can do alone and what the child can do with help.
- scaffolding Temporary support to help a child master a task.
- The Information-Processing Approach
- information-processing approach Approach to the study of cognitive development by observing and analyzing the mental processes involved in perceiving and handling information.
- Contextual
- contextual perspective View of human development that sees the individual as inseparable from the social context.
- bioecological theory Bronfenbrenner's approach to understanding processes and contexts of human development that identifies five levels of environmental influence.
- The American psychologist Urie Bronfenbrenner's (1917–2005) bioecological theory (1979, 1986, 1994; Bronfenbrenner & Morris, 1998) identifies five levels of environmental influence, ranging from very intimate to very broad: microsystem, mesosystem, exosystem, macrosystem , and chronosystem (Figure 2-1).
- To understand the complexity of influences on development, we must see a person within the context of these multiple environments. A microsystem is the everyday environment of home, school, work, or neighborhood, including face-to-face relationships with spouse, children, parents, friends, classmates, teachers, employers, or colleagues. How does a new baby affect the parents' lives? How do male professors' attitudes affect a young woman's performance in college?

- The mesosystem is the interlocking of various microsystems—linkages between home and school, work and neighborhood. How does a bitterly contested divorce affect a person's performance at work? How does unhappiness on the job affect a parent-child relationship?
- The exosystem consists of linkages between a microsystem and outside systems or institutions that affect a person indirectly. How does a community's transit system affect job opportunities? Does television programming that may encourage criminal behavior make people less secure in their homes?
- The macrosystem consists of overarching cultural patterns, such as dominant beliefs, ideologies, and economic and political systems. How is an individual affected by living in a capitalist or socialist society?
- Finally, the chronosystem adds the dimension of time: change or constancy in the person and the environment. This can include changes in family structure, place of residence, or employment, as well as larger cultural changes such as wars and economic cycles.
- Evolutionary/Sociobiological
- The evolutionary/sociobiological perspective proposed by E. O. Wilson (1975) focuses on evolutionary and biological bases of behavior. Influenced by Darwin's theory of evolution, it draws on findings of anthropology, ecology, genetics, ethology, and evolutionary psychology to explain the adaptive, or survival, value of behavior for an individual or species.
- The evolutionary/sociobiological approach is not necessarily a separate theoretical perspective; it both borrows from and predicts findings of, for example, social learning theory, cognitive-developmental theory, and contextualism (MacDonald, 1988, 199)
- evolutionary/sociobiological perspective View of human development that focuses on evolutionary and biological bases of behavior
- ethology Study of distinctive adaptive behaviors of species of animals that have evolved to increase survival of the species.
- evolutionary psychology Application of Darwinian principles of natural selection and survival of the fittest to individual behavior.

Module 2: Prenatal Development

- Fertilization- Fertilization, or conception, is the process by which sperm and ovum—the male and female gametes, or sex cells—combine to create a single cell called a zygote, which then duplicates itself again and again by cell division to produce all the cells that make up a baby. But conception is not as simple as it sounds. Several independent events need to coincide to conceive a child
- fertilization Union of sperm and ovum to produce a zygote; also called conception.
- zygote One-celled organism resulting from fertilization
- dizygotic twins Twins conceived by the union of two different ova (or a single ovum that has split) with two different sperm cells; also called fraternal twins ; they are no more alike genetically than any other siblings.
- monozygotic twins Twins resulting from the division of a single zygote after fertilization; also called identical twins ; they are genetically similar.
- deoxyribonucleic acid (DNA) Chemical that carries inherited instructions for the development of all cellular forms of life.
- genetic code Sequence of bases within the DNA molecule; governs the formation of proteins that determine the structure and functions of living cells.
- chromosomes Coils of DNA that consist of genes.
- genes Small segments of DNA located in definite positions on particular chromosomes; functional units of heredity.
- human genome Complete sequence of genes in the human body
- autosomes In humans, the 22 pairs of chromosomes not related to sexual expression.
- sex chromosomes Pair of chromosomes that determines sex: XX in the normal human female, XY in the normal human male.
- Patterns of Genetic Transmission
- alleles Two or more alternative forms of a gene that occupy the same position on paired chromosomes and affect the same trait.
- homozygous Possessing two identical alleles for a trait
- heterozygous Possessing differing alleles for a trait.
- dominant inheritance Pattern of inheritance in which, when a child receives different alleles, only the dominant one is expressed.

- recessive inheritance Pattern of inheritance in which a child receives identical recessive alleles, resulting in expression of a nondominant trait.
- polygenic inheritance Pattern of inheritance in which multiple genes at different sites on chromosomes affect a complex trait.
- mutations Permanent alterations in genes or chromosomes that may produce harmful characteristics
- phenotype Observable characteristics of a person
- genotype Genetic makeup of a person, containing both expressed and unexpressed characteristics
- multifactorial transmission Combination of genetic and environmental factors to produce certain complex traits.
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- incomplete dominance Pattern of inheritance in which a child receives two different alleles, resulting in partial expression of a trait.
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- Down syndrome Chromosomal disorder characterized by moderate-to-severe mental retardation and by such physical signs as a downward-sloping skin fold at the inner corners of the eyes.
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- behavioral genetics Quantitative study of relative hereditary and environmental influences on behavior.
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- concordant Term describing tendency of twins to share the same trait or disorder.
- reaction range Potential variability, depending on environmental conditions, in the expression of a hereditary trait.
- genotype-environment interaction The portion of phenotypic variation that results from the reactions of genetically different individuals to similar environmental conditions.

- Some Characteristics Influenced by Heredity and Environment- obesity Extreme overweight in relation to age, sex, height, and body type.- temperament Characteristic disposition, or style of approaching and reacting to situations-
- Prenatal Development
- gestation Period of development between conception and birth.
- gestational age Age of an unborn baby, usually dated from the first day of an expectant mother's last menstrual cycle.
- Stages of Prenatal Development
- germinal stage First 2 weeks of prenatal development, characterized by rapid cell division, blastocyst formation, and implantation in the wall of the uterus. (Fertilization to 2 Weeks)
- Within 36 hours after fertilization, the zygote enters a period of rapid cell division and duplication (mitosis).
- Seventy-two hours after fertilization, it has divided first into 16 and then into 32 cells; a day later it has 64 cells. This division will continue until the original single cell has developed into the 800 billion or more specialized cells that make up the human body—a process that continues well after birth
- While the fertilized ovum is dividing, it is also making its way through the fallopian tube to the uterus, a journey of 3 or 4 days. Its form changes into a blastocyst, a fluid-filled sphere, which floats freely in the uterus until the sixth day after fertilization, when it begins to implant itself in the uterine wall. Only about 10 to 20 percent of fertilized ova complete the task of implantation and continue to develop
- Before implantation, as cell differentiation begins, some cells around the edge of the blastocyst cluster on one side to form the embryonic disk, a thickened cell mass from which the embryo begins to develop. This mass will differentiate into three layers.
- The ectoderm, the upper layer, will become the outer layer of skin, the nails, hair, teeth, sensory organs, and the nervous system, including the brain and spinal cord
- The endoderm, the lower layer, will become the digestive system, liver, pancreas, salivary glands, and respiratory system
- The mesoderm, the middle layer, will develop and differentiate into the inner layer of skin, muscles, skeleton, and excretory and circulatory systems.

- Other parts of the blastocyst begin to develop into organs that will nurture and protect development in the womb: the amniotic cavity, or amniotic sac, with its outer layers, the amnion and chorion; the placenta; and the umbilical cord
- The amniotic sac is a fluid-filled membrane that encases the developing embryo, protecting it and giving it room to move and grow. The placenta allows oxygen, nourishment, and wastes to pass between mother and embryo. It is connected to the embryo by the umbilical cord .
- The mother's and embryo's circulatory systems are not directly linked; instead, this exchange occurs by diffusion across the blood vessel walls.
- The placenta also helps to combat internal infection and gives the unborn child immunity to various diseases. It produces the hormones that support pregnancy, prepare the mother's breasts for lactation, and eventually stimulate the uterine contractions that will expel the baby from the mother's body.
- Embryonic Stage (2 to 8 Weeks) During the embryonic stage , the second stage of gestation, from about 2 to 8 weeks, the organs and major body systems— respiratory, digestive, and nervous—develop rapidly.
- embryonic stage Second stage of gestation (2 to 8 weeks), characterized by rapid growth and development of major body systems and organs.
- The most severely defective embryos usually do not survive beyond the first trimester, or three-month period, of pregnancy- spontaneous abortion Natural expulsion from the uterus of an embryo that cannot survive outside the womb; also called miscarriage .
- Males are more likely than females to be spontaneously aborted or to be stillborn (dead at or after the 20th week of gestation)
- Fetal Stage (8 Weeks to Birth) The appearance of the first bone cells at about 8 weeks signals the beginning of the fetal stage , the final stage of gestation. During this period, the fetus grows rapidly to about 20 times its previous length, and organs and body systems become more complex. Right up to birth, final details such as fingernails, toenails, and eyelids continue to develop.
- fetal stage Final stage of gestation (from 8 weeks to birth), characterized by increased differentiation of body parts and greatly enlarged body size.
- Fetuses are not passive passengers in their mothers' wombs. They breathe, kick, turn, flex their bodies, do somersaults, squint, swallow, make fists, hiccup, and suck their thumbs. The flexible membranes of the uterine walls and amniotic sac, which surround

the protective buffer of amniotic fluid, permit and stimulate limited movement. Fetuses also can feel pain, but it is unlikely that they do so before the third trimester

- ultrasound Prenatal medical procedure using high-frequency sound waves to detect the outline of a fetus and its movements, so as to determine whether a pregnancy is progressing normally.
- The movements and activity level of fetuses show marked individual differences, and their heart rates vary in regularity and speed. Male fetuses, regardless of size, are more active and tend to move more vigorously than female fetuses throughout gestation. Thus, infant boys' tendency to be more active than girls may be at least partly inborn
- Beginning at about the 12th week of gestation, the fetus swallows and inhales some of the amniotic fluid in which it floats. The amniotic fluid contains substances that cross the placenta from the mother's bloodstream and enter the fetus's bloodstream. Partaking of these substances may stimulate the budding senses of taste and smell and may contribute to the development of organs needed for breathing and digestion
- Fetuses respond to the mother's voice and heartbeat and the vibrations of her body, suggesting that they can hear and feel. Hungry infants, no matter on which side they are held, turn toward the breast in the direction from which they hear
- Effect of long term & short term use of Teratogens- teratogenic Capable of causing birth defects
- hild's environment and affect its growth. Not all environmental hazards are equally risky for all fetuses. Some factors that are teratogenic (birth defect–producing) in some cases have little or no effect in others. The timing of exposure (refer back to Figure 3-10), the dose, duration, and interaction with other teratogenic factors may make a difference. Sometimes vulnerability may depend on a gene either in the fetus or in the mother. For example, fetuses with a particular variant of a growth gene, called transforming growth factor alpha, have six times more risk than other fetuses of developing a cleft palate if the mother smokes while pregnant
- Nutrition and Maternal Weight- Either too much or too little weight gain can be risky.
- A mother's weight before pregnancy matters too- risk having children with birth defects
- an omega-3 fatty acid found in certain fish, such as Atlantic salmon and tuna, showed more mature sleep patterns (a sign of advanced brain development) than infants whose mothers' blood had lower levels of DHA
- Folic acid, or folate (a B vitamin), is critical in a pregnant woman's diet

- Malnutrition- Prenatal malnutrition may have long-range effectS.
- It is important to identify malnutrition early in pregnancy so that it can be treated. Malnourished women who take dietary supplements while pregnant tend to have bigger, healthier, more active, and more visually alert infants
- Drug Intake- Drugs may cross the placenta, just as oxygen, carbon dioxide, and water do. Vulnerability is greatest in the first few months of gestation, when development is most rapid.
- What are the effects of the use of specific drugs during pregnancy? Let's look first at medical drugs; then at alcohol, nicotine, and caffeine; and finally at three illegal drugs: marijuana, cocaine, and methamphetamine
- Among the medical drugs that may be harmful during pregnancy are the antibiotic tetracycline; certain barbiturates, opiates, and other central nervous system depressants; several hormones, including diethylstilbestrol (DES) and androgens; certain anticancer drugs, such as methotrexate; and Accutane, a drug often prescribed for severe acne (Koren, Pastuszak, & Ito, 1998). Angiotensin-converting enzyme (ACE) inhibitors and nonsteroidal anti-inflammatory drugs (NSAIDs), such as naproxen and ibuprofen, have been linked to birth defects when taken anytime from the first trimester on
- Alcohol- fetal alcohol syndrome (FAS) Combination of mental, motor, and developmental abnormalities affecting the offspring of some women who drink heavily during pregnancy.
- Nicotine Maternal smoking has been identified as the single most important factor in low birth weight in developed countries. The effects of prenatal exposure to secondhand smoke on cognitive development tend to be worse when the child also experiences socioeconomic hardships, such as substandard housing, malnutrition, and inadequate clothing during the first two years of life.
- Caffeine Can the caffeine a pregnant woman consumes in coffee, tea, cola, or chocolate cause trouble for her fetus.
- Marijuana, Cocaine, and Methamphetamine- use during pregnancy has been associated with spontaneous abortion, delayed growth, premature labor, low birth weight, small head size, birth defects, and impaired neurological development.
- Maternal Illnesses- acquired immune deficiency syndrome (AIDS) Viral disease that undermines effective functioning of the immune system.

- The biggest risk factor for perinatal HIV transmission is a mother who is unaware she has HIV.
- Maternal Anxiety and Stress Some tension and worry during pregnancy are normal and do not necessarily increase risks of birth complications, such as low birth weight.
- Maternal Age- Although most risks to the infant's health are not much greater than for babies born to younger mothers, the chance of miscarriage or stillbirth rises with maternal age
- Outside Environmental Hazards- Air pollution, chemicals, radiation, extremes of heat and humidity, and other environmental hazards can affect prenatal development. Pregnant women who regularly breathe air that contains high levels of fine combustion-related particles are more likely to bear infants who are premature or undersized (Parker, Woodruff, Basu, & Schoendorf, 2005) or have chromosomal abnormalities.
- Birth Process: Types, methods- prenatal and perinatal diagnostic tests. Birth Complication and their effects. Post partum period- physical, emotional adjustment.

Module 3: Physical Development

- Newborn reflexes
- Rooting reflex. This reflex starts when the corner of the baby's mouth is stroked or touched. ...
- Suck reflex. Rooting helps the baby get ready to suck. ...
- Moro reflex. The Moro reflex is often called a startle reflex. ...
- Tonic neck reflex. ...
- Grasp reflex. ...
- Stepping reflex
- Gross and fine motor skills- Gross motor skills pertain to skills involving large muscle movements, such as independent sitting, crawling, walking, or running. Fine motor skills involve use of smaller muscles, such as grasping, object manipulation, or drawing.
- Perceptual development in infancy
- Infants use perception to distinguish features of the environment, such as height, depth, and color. “The human infant is recognized today as 'perceptually competent'; determining just how the senses function in infancy helps to specify the perceptual world of babies” (Bornstein 2005, 284).
- Perceptual development during infancy refers to infants' ability to receive stimuli and then interpret and learn from the stimuli. Perceptual development involves all five senses.
- An example of perceptual development is the development of facial recognition in infants. Early on, infants can recognize their caregiver's face. This skill lays the foundation for later life when it will become necessary to distinguish between different facial expressions to understand social cues and emotional interaction.
- Physical development from childhood to adolescence.
- Physical development is the most readily visible of the child development domains. Parents notice height and weight as well as the development of both fine motor and gross (large) motor skills. It's important to remember that what we can see physically corresponds to what we can't see which is brain development.
- Physical changes of puberty mark the onset of adolescence. These changes include a growth spurt in height, growth of pubic and underarm hair, and skin changes (e.g.,

pimples). Males experience growth in facial hair and a deepening of their voice. Females experience breast development and begin menstruating.

- Puberty typically starts at 10-11 years for girls and 11-12 years for boys. It can be earlier or later. In puberty, children get taller, heavier and stronger. There are also changes in children's sexual organs, brains, skin, hair, teeth and sweatiness
- Physical condition and health issues in early & middle adulthood- early adulthood is a healthy, yet risky time of life, the risk factors for substance use, the changes in brain maturation, gender role, sexuality, brain areas and hormones responsible for sexual behavior, issues related to infection and views of sexuality and its orientation.
- In middle adulthood there is difference between primary and secondary aging, sensory changes that occur during middle adulthood, identify health concerns, sexuality during middle adulthood, importance of sleep and consequences of sleep deprivation, importance of exercise and nutrition for optimal health and brain functioning in middle adulthood.

Module 4: Cognitive Development

- Piaget's theory of Cognitive Development:
- Jean Piaget's theory of cognitive development suggests that children move through four different stages of learning. His theory focuses not only on understanding how children acquire knowledge, but also on understanding the nature of intelligence.
- Sensorimotor stage: Birth to 2 years
- During this earliest stage of cognitive development, infants and toddlers acquire knowledge through sensory experiences and manipulating objects. A child's entire experience at the earliest period of this stage occurs through basic reflexes, senses, and motor responses. The cognitive development that occurs during this period takes place over a relatively short time and involves a great deal of growth. Children not only learn how to perform physical actions such as crawling and walking; they also learn a great deal about language from the people with whom they interact.
- Preoperational stage: Ages 2 to 7
- The foundations of language development may have been laid during the previous stage, but the emergence of language is one of the major hallmarks of the preoperational stage of development.
- Concrete operational stage: Ages 7 to 11
- While children are still very concrete and literal in their thinking at this point in development, they become much more adept at using logic.The egocentrism of the previous stage begins to disappear as kids become better at thinking about how other people might view a situation.
- Formal operational stage: Ages 12 and up
- The final stage of Piaget's theory involves an increase in logic, the ability to use deductive reasoning, and an understanding of abstract ideas.3 At this point, adolescents and young adults become capable of seeing multiple potential solutions to problems and think more scientifically about the world around them.

Language development:

- At three months, your baby will most likely coo, smile and laugh. As they grow, your baby will begin to play with sounds and communicate with gestures like waving and pointing.

- At around 4-6 months, your baby will probably start babbling. Baby will make single-syllable sounds like ‘ba’ first, before repeating them – ‘ba ba ba’.
- Babbling is followed by the ‘jargon phase’ where your child might sound like they’re telling you something, but their ‘speech’ won’t sound like recognisable words. First words with meaning often start at around 12 months or so
- 12-18 months
- At this age, children often say their first words with meaning. For example, when your child says ‘Dada’, your child is actually calling for dad. In the next few months, your child’s vocabulary will grow. Your child can understand more than they can say. They can also follow simple instructions like ‘Sit down’.
- 18 months to 2 years
- Most children will start to put two words together into short ‘sentences’. Your child will understand much of what you say, and you can understand most of what your child says to you. Unfamiliar people will understand about half of what your child says.
- 2-3 years
- Your child most likely speaks in sentences of 3-4 words and is getting better at saying words correctly. Your child might play and talk at the same time. Strangers can probably understand about three-quarters of what your child says by the time your child is three.
- 3-5 years
- You can expect longer, more complex conversations about your child’s thoughts and feelings. Your child might also ask about things, people and places that aren’t in front of them.
- 5-8 years
- During the early school years, your child will learn more words and start to understand how the sounds within language work together. Your child will also become a better storyteller, as they learn to put words together in different ways and build different types of sentences. These skills also let your child share ideas and opinions. By eight years, your child will be able to have adult-like conversation
- Language development is a higher level cognitive skill involving audition and oral abilities in humans to communicate verbally individuals’ wants and needs.
- Language is a complex system involving several components. The components of language include phonology, semantics, syntax, and pragmatics. Language development occurs in a predictable fashion. Most typically developing children

acquire the skills in each of the four areas by the end of their ninth year of life. While some children may develop more quickly than this, others may develop a bit slower. The important issue is that language develops in a typical sequence across all four areas.

- Cognitive changes in early adulthood- Emerging adulthood brings with it the consolidation of formal operational thought, and the continued integration of the parts of the brain that serve emotion, social processes, and planning and problem solving.
- In the adolescence module, we discussed Piaget's formal operational thought. The hallmark of this type of thinking is the ability to think abstractly or to consider possibilities and ideas about circumstances never directly experienced. Thinking abstractly is only one characteristic of adult thought, however. If you compare a 14-year-old with someone in their late 30s, you would probably find that the latter considers not only what is possible, but also what is likely. Why the change? The young adult has gained experience and understands why possibilities do not always become realities. This difference in adult and adolescent thought can spark arguments between the generations.
- Here is an example. A student in her late 30s relayed such an argument she was having with her 14-year-old son. The son had saved a considerable amount of money and wanted to buy an old car and store it in the garage until he was old enough to drive. He could sit in it, pretend he was driving, clean it up, and show it to his friends. It sounded like a perfect opportunity. The mother, however, had practical objections. The car would just sit for several years while deteriorating. The son would probably change his mind about the type of car he wanted by the time he was old enough to drive and they would be stuck with a car that would not run. She was also concerned that having a car nearby would be too much temptation and the son might decide to sneak it out for a quick ride before he had a permit or license.

- Piaget's theory of cognitive development ended with formal operations, but it is possible that other ways of thinking may develop after (or "post") formal operations in adulthood (even if this thinking does not constitute a separate "stage" of development). Postformal thought is practical, realistic, and more individualistic, but also characterized by understanding the complexities of various perspectives. As a person approaches the late 30s, chances are they make decisions out of necessity or because of prior experience and are less influenced by what others think. Of course, this is

particularly true in individualistic cultures such as the United States. Postformal thought is often described as more flexible, logical, willing to accept moral and intellectual complexities, and dialectical than previous stages in development

Schaie's Model of Cognitive Development

- a stage theory in which human cognitive processes are posited to develop within up to five periods during the lifespan. In the first, the acquisitive stage, an individual's primary cognitive task is to acquire knowledge and intellectual skills. Corresponding to developmental approaches such as that of Jean Piaget, this stage occurs from infancy through adolescence. The achieving stage occurs next, in young adulthood, during which an individual's primary cognitive task is to achieve personal goals (e.g., starting a family, establishing a career) by applying the intellectual skills learned during the acquisitive stage. The individual then uses those skills in middle adulthood, during the responsible stage, to manage increasingly complex situations arising from family, community, and career responsibilities. This stage may by followed by the executive stage, during which some middle-aged adults may achieve a high level of intellectual functioning characterized by a broadened focus on societal rather than on exclusively personal concerns and by an ability to set priorities as well as to assimilate conflicting information. Finally, in the reintegrative stage, individuals in late adulthood apply their intellectual skills to reexamine their life experiences and priorities and to focus their attention on tasks of great personal meaning. Memory storage and retrieval and the speed of other cognitive functions may decline, but general cognitive ability continues to develop during this stage. Also called Schaie's stages of adult cognitive development. See also Seattle Longitudinal Study.

Sternberg - Cognitive Development of middle adulthood.

- Sternberg's theory identifies three types of intelligence: practical, creative, and analytical. Practical intelligence, as proposed by Sternberg, is sometimes compared to "street smarts." Being practical means you find solutions that work in your everyday life by applying knowledge based on your experiences.

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