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# **PSY1102**

# **Introduction to Applied Psychology**

## **Class 5**

## **The developing person**

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# Agenda for today

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## 1. Infancy and childhood

- a. Physical development
- b. Cognitive development
- c. Piaget's theory and current thinking
- d. Social development
- e. Self-concept

## 2. Adolescence

- a. Physical development
- b. Cognitive development
- c. Social development
- d. Emerging adulthood

# 1. Infancy and childhood

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- a. Physical development
- b. Cognitive development
- c. Piaget's theory and current thinking
- d. Social development
- e. Self-concept

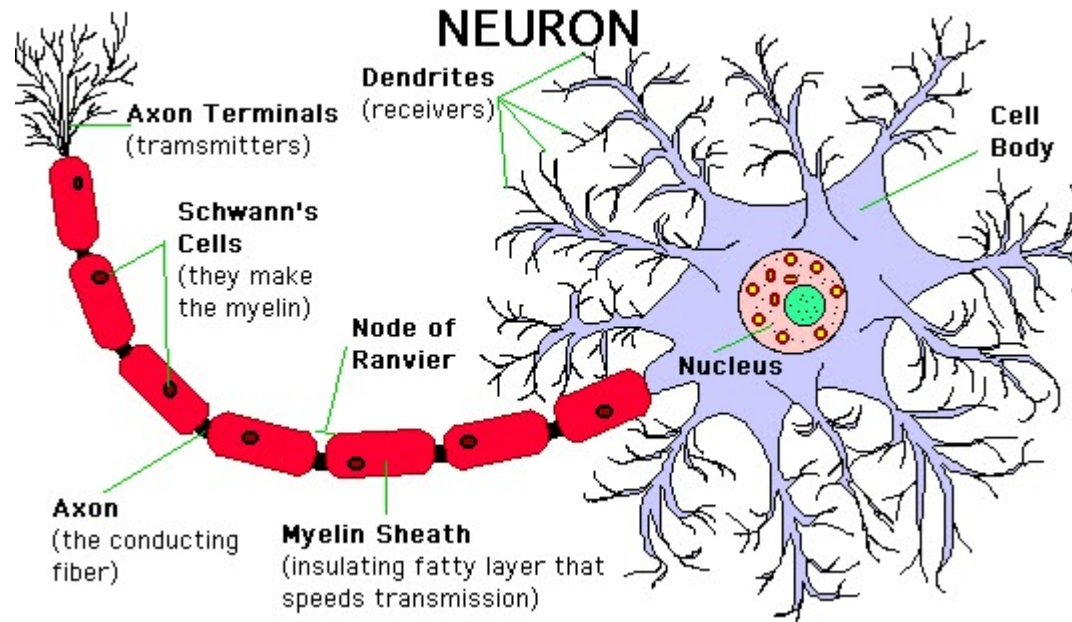
# 1. Infancy and childhood

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- One of the conditions that determines when human babies are born is the ability of the infant's head to fit through the birth canal.
- In turn, this imposes limits on the extent of development of the human brain before birth.
- As a result, when human babies are born the brain is far from mature. Unlike some other species, humans must go through an extended period of dependence.
- During this period – which begins with infancy in the post-natal period – adult humans can observe the development of the child.

# 1a. Physical development: the neuron

- Nerve cells (neurons) consist of three principal parts:
  - Soma (cell body)
  - Dendrites (for receiving input)
  - Axon (for transmission)

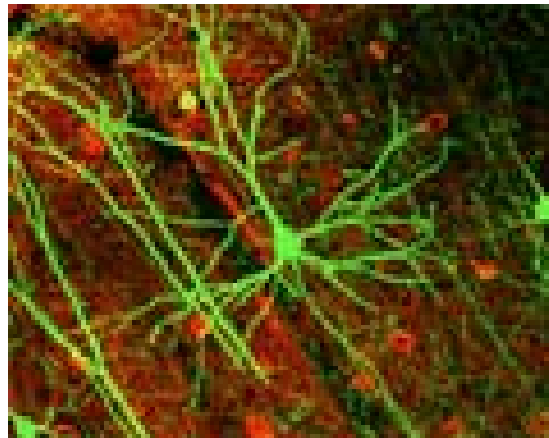


Source: <http://forum.mndassociation.org/showthread.php?281-The-Anatomy-of-a-Neuron>

## 1a. Physical development: the neuron (concluded)

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- As a neuron develops, the axon grows to form connections with the dendrites of another neuron.
- Also, the richness of a neuron's dendritic tree increases, providing more surface area for neurons to connect to.



Source: [http://en.wikipedia.org/wiki/Pyramidal\\_cell](http://en.wikipedia.org/wiki/Pyramidal_cell)

## 1a. Physical development: the brain

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- In the later stages of fetal development, the brain produces more neurons (nerve cells) than will survive. Instead, there is a great dying off of “surplus” neurons.
- The neurons that remain make up the bulk of the neurons you will carry through life.
- However, the connections between these neurons are impoverished because the neurons have not yet finished developing.
- Figure 5.5 in the text provides a good illustration of the increasing complexity of neural networks through development.

## **1a. Physical development: the brain (concluded)**

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- Unlike cats and dogs, humans are born with their eyes and ears open.
- The sensory areas of the brain develop early, as do the motor areas.
- The last cortical areas to develop are the association areas, which are involved with thinking, memory, and language.
- Infants orient to sounds and sights very soon after birth, but do not understand speech sounds for several months after birth.
- Once the infrastructure for these “associative functions” begins to mature, one can see changes occurring rapidly in the functional maturity of the infant.



# 1a. Physical development: motor development

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- As the brain and the muscles develop, the infant's behavioural repertoire increases in a well-defined sequence:
  - The infant moves his or her arms and legs; visual and tactile feedback help train and coordinate guided movements.
  - Gross movements, such as rolling over, become possible.
  - Eventually, the infant sits up, providing a different perspective and facilitating exploration by head movement.
  - Guided hand movements enable the infant to bring objects to the mouth, which also provides feedback.
  - Coordination of the limbs enables the infant to crawl, and eventually to pull him- or herself up to stand against an object.
  - Eventually, the infant can stand – unstably at first – and then learn to walk (1 year of age) and run.
  - Bowel and bladder control develop around 2 years of age.

## 1a. Physical development: infant memory

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- How much do you remember of the first two years of your life? Nothing, right?
- Humans rarely have a memory of anything that happened before they were 3-4 years of age.
- However, there is strong evidence that infants and young children learn before this age, which implies that memories are being laid down in the brain. However, it appears that they are not accessible to conscious memory.
- Among the last parts of the human brain to mature are the frontal lobes (associated with planning and memory) and the hippocampus (associated with memory).
  - Immature frontal lobes are associated with impulsive (rather than planned) behaviour.

## 1b. Cognitive development

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- Cognition – thinking, remembering, knowing, and communicating – develops over time.
- Of course, we acquire knowledge through our life, but cognitive development looks at the ability to acquire and use knowledge, not the knowledge itself.
- The work of Jean Piaget (see later) has been important in helping psychologists understand that children reason differently than do adults. Indeed, Piaget's work has provided a framework for other work in cognitive development.

## 1b. Cognitive development (continued)

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- Piaget proposed that as the brain matures, it builds schemas, which are associative networks into which we incorporate new experiences.
- Piaget also proposed that we assimilate new experiences. In other words, the new experiences are interpreted in terms of the understanding of the world that we already have.
  - We learn that the object that our parents use to read to us is a book, and soon learn that there is more than one book.
- However, Piaget also noted that we must accommodate to the world. Here, we adjust the schemas to incorporate new experiences.
  - For example, our swan schema may include only white swans. When we first observe a black swan, we must adjust the scheme to accommodate this new information.

## 1c. Piaget's theory and current thinking

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- Based on his studies of children, Piaget proposed that development occurs in a series of four stages, as follows (see Table 5.1 in the text):
  - Sensorimotor stage: birth to 2 years;
  - Preoperational stage: 2 years to 6 or 7 years;
  - Concrete operational stage: 7 years to 11 years;
  - Formal operational stage: 12 years through adulthood.
- Piaget posited that these are four distinct stages, and that development does not occur as a continuum.

## 1c. Piaget's theory: sensorimotor stage

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- During the sensorimotor stage, babies are using their muscles and sensory capabilities to explore their bodies and the world.
- Sensorimotor coordination permits the completion of feedback loops, such as grabbing a block and bringing it to the mouth.
- Early in this stage (e.g., to 6 months), if something is not perceptible, it ceases to exist.
  - We interpret this to mean that infants lack object permanence.
- However, by 8 months infants will look for a hidden object, exhibiting object permanence.
- The text describes other capabilities at the sensorimotor stage, such as looking longer at illogical events.

## 1c. Piaget's theory: preoperational stage

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- In the pre-operational stage, three concepts are important:
  - Conservation
  - Egocentrism
  - Theory of mind

## 1c. Preoperational stage and conservation

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- In Piaget's terminology, the term operational implies that one is capable of performing mental operations. Thus, in the preoperational stage the child lacks this capability.
- For example, suppose one shows a child two identical short, wide glasses containing the same amount of milk.
- Next, in front of the child the milk is poured from one short, wide glass into a tall, thin glass.
- A preoperational child will interpret the greater height of the milk in this glass to mean that there is more milk in this glass than in the other (short, wide) one.
- This is called lack of conservation.
- Similarly, younger children cannot conserve space (e.g., with models of a room).



## 1c. Preoperational stage and egocentrism

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- Piaget noted that preschool children have trouble seeing things from someone else's point of view.
- The text (page 183) gives good examples of this in young children.
- However, many of us can also point to examples of egocentrism in older people, including adults.

## 1c. Preoperational stage and theory of mind

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- What – other people can think, too?
- Children in the preoperational stage acquire the ability to adopt the perspective of someone else and understand the motivation for the behaviour of other people.
- This ability – sensitivity to mental operations in other people – is also associated with manipulativeness.
- Some of the great apes also have this ability.

## **1c. Piaget's theory: concrete operational stage**

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- Once a child reaches 6-7 years of age, s/he becomes capable of performing what Piaget termed concrete (as opposed to abstract) mental operations.
- They become aware of conservation: the shape of the glass doesn't matter to the volume of its contents, for example.
- In other words, in the concrete operational stage it is no longer the case that each operation must be solved anew. (Think of route planning.)

## 1c. Piaget's theory: formal operational stage

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- In the concrete operational stage, learning is based on experience (concrete events).
- By contrast, in the formal operational stage abstract thinking emerges.
  - A rough analogy is that the difference between these stages is similar to the difference between arithmetic and algebra.

## 1c. Piaget's theory: reflections

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- Although Piaget's theory has been modified by more recent research – as is the norm in science – his framework for child development continues to be of value in psychology.
- For instance, his theory has enabled researchers to formulate questions that can be studied by experiments.
- Although he posited the timing of developmental milestones, a major contribution was in their sequence.
  - Here, his theory has transcended the Swiss culture he studied, and appears to hold true in different cultures.
- Whereas Piaget proposed that maturation involved interaction with the physical environment, Lev Vygotsky posited a role for the social environment.

## 1d. Social development

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- Because babies lack the physical and mental resources to survive on their own, it is adaptive that they form a strong bond with other people.
- Because of intrauterine experiences, there is evidence that babies recognise their mother's voice, and they come to recognise other voices, also.
- Around 8 months of age, stranger anxiety appears, a normal part of development in which they become distressed by unfamiliar people.

## 1d. Social development: attachment

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- The strong attachment between young children and their parents has both a visual and a tactile component.
- Harlow's experiments with infant monkeys demonstrated that these animals would nurse from a wire surrogate mother but preferred to cling to a soft, cloth-covered surrogate.
- Just as for vision in kittens, there is a critical period for socialisation in several species of animals (cf. Lorenz's studies on imprinting in ducklings).
- There is no evidence for imprinting in humans, but through life individuals strike a balance between attachment to familiar things and exploration of new things.

## 1d. Social development: attachment (continued)

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- Three things to know about attachment concern confidence, trust and deprivation.
- As described in the text, infants secure (confident) in their relationship with the caregiver (e.g., mother) may exhibit anxiety in her absence, but seek contact when she returns. A key factor seems to be parental sensitivity to the child.
- According to Erik Erikson, securely attached children seem to have basic trust in the predictability of the world. This can extend to trust in intimate relationships as adults.
- Deprivation of attachment – for example, with cold parenting styles – can have a devastating effect on the child's ability to form confident social relationships. Abused children may become abusive adults, but – and this is important – do not necessarily become abusive.



## **1d. Social development: attachment (concluded)**

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- Some adoption studies suggest that adoption before the age of 2 years helps establish secure and lasting attachment.
- In situations such as day care, the separation of the child from the parent is balanced by attachment to multiple caregivers, which can provide a secure environment that fosters attachment and confidence.
  - Also, day care provides the parents with respite (a break) from constantly being “on duty” with the child(ren).
  - If the child is having a difficult day, a day care environment also permits different carers to take turns with the child.

## 1e. Self-concept

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- Who are you? Perhaps more importantly, when did you form a lasting image of who you wanted to be?
- Humans over the age of 18 months, as well as some animals (great apes, elephants, dolphins, and some birds) recognise that the object they see in the mirror is themselves.
  - Most other species show no evidence of such self-recognition.
- As noted in the text (page 195), different parenting styles are associated with differential development of self-esteem in children.

## 2. Adolescence

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- a. Physical development
- b. Cognitive development
- c. Social development
- d. Emerging adulthood

## 2. Adolescence

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- Adolescence is the stage of life in which humans change from being a child to being an adult.
- During adolescence, people acquire more responsibility and more independence, moving into adult society with all of the expectations this status brings.
- Perhaps the most discussed aspect of adolescence, and the one that is subjectively most wonderful (and occasionally awful) is sexual maturation.
  - During this time, humans must not only evolve into positions of more responsibility (such as having a job) but must also cope with a changing body and the hormonal changes that come with it.

## **2a. Physical development: Overview of puberty**

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- Puberty marks the beginning of adolescence.
- Puberty is triggered by hormonal changes that are associated with bodily changes and with greater moodiness.
- Puberty begins around age 11 in girls and age 13 in boys.

## 2a. Physical development: Changes in puberty

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- Primary sex characteristics – that is, male and female genitalia – change appearance and function.
- Secondary sex characteristics also undergo great changes:
  - Both genders acquire pubic and axillary (armpit) hair;
  - Boys acquire facial hair, experience growth of the “adam’s apple”, and develop a deeper voice;
  - Girls first experience breast development, followed by growth of the hips.
- Puberty begins “officially” when:
  - Boys experience their first ejaculation of seminal fluid (often at night in what is called a “wet dream”), and
  - Girls experience their first menstrual period (known as menarche).

## 2a. Physical development: Timing of changes

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- The specific timing of pubertal changes can vary from person to person.
- However, the sequence of events is more constant.
- As might be expected, much of this can be anxiety-provoking.
  - If you're the first girl in your class to begin developing breasts, you may be either proud or embarrassed; in either case, your body may be out of step with your social and emotional environment;
  - Similarly, if you're the last boy in your class to have his voice change, this can be embarrassing; as an example, you may not be chosen for athletic teams because your muscle mass has not yet begun to increase.

## 2a. Physical development: changes in the brain

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- While the adolescent's sexual characteristics are maturing, his or her frontal lobes are also developing, fostering better links to the rest of the brain.
- Maturation of the frontal lobes is associated with greater impulse control, better planning, and better judgment.
- The more ancient limbic system of the brain is associated with emotion. Being more primitive, development of the limbic system precedes development of the frontal lobes, resulting in emotional outbursts without the “adult brake” of the frontal lobes.



## 2b. Cognitive development

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- Recall that during childhood humans acquire the ability reason, and they begin to acquire the ability to see things from the perspective of other people.
- This can be a mixed blessing during adolescence, when many people feel awkward and vulnerable and may feel that others see them that way, and that they are the only people who look like that.
- As adolescents mature, they begin to move into the Piagetian period of formal operations, where they can reason more abstractly.
- All of a sudden, parents and friends may find that an adolescent takes strongly felt positions against their own views.

## 2b. Cognitive development: moral development

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- As described in the text, Kohlberg's work in the 1980s looked at the development of moral reasoning; he proposed three levels of moral thinking:
  - Preconventional morality, or rule-following guided by self interest (avoid punishment, get rewards);
  - Conventional morality, also rule-following but in a broader social context that takes into account other people; and
  - Postconventional morality, where abstract reasoning leads to a greater understanding of rights and ethics.
- Cultural differences call into question the universality of Kohlberg's third stage:
  - As we've seen before, some Asian societies focus on the community rather than the individual as the key entity.

## 2c. Social development

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- Erik Erikson is a major theorist in social development, and Table 5.2 in the text summarises his stages of psychosocial development.
- For adolescence, he posits that the major issue is identity vs. role confusion:
  - Are teenagers children or adults?
  - Who do I want to be?
  - What do I want to do with my life?
- Erikson call this the search for identity.

## 2c. Social development: forming an identity

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- As part of the process of figuring out their identity, adolescents will try out different personae (selves), playing different roles with different audiences.
- The extent to which an adolescent is free to experiment is, in part, a function of the type of society in which he or she lives.
- Self-esteem may vary through adolescence as teenagers experiment with intimate relationships as well as other types of relationships.
  - For example, it may take time to become comfortable with oneself as a sexual being and establishing limits and guidelines for this uncharted territory.

## 2c. Social development: parents and peers

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- In Western cultures, it is expected that adolescents will grow away from their parents, spending less time at home, making their own decisions, handling their own finances, etc.
- At the same time, adolescents look to their peers to help determine what is the norm and what is acceptable.
  - How should I dress?
  - Should I do drugs?
  - Should I drink?
  - Should I go out with...?
  - Should I have sex with ...?

## 2d. Emerging adulthood

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- Emerging adulthood is the final stage of adolescence, when the individual is taking charge of his or her life in a substantial way, starting a life of work, marrying, and becoming a parent.
- Depending on economic conditions and other factors, this stage may take longer than it did in the past.

## Summary: Class 5

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- We have followed the child from infancy to the beginnings of adulthood, looking at:
  - Physical development;
  - Cognitive development;
  - Social development; and
  - Other aspects.