

Information Pack

Child Development

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Introduction Child Development

Developmental psychology is a relatively new science, but the continued pursuit of its study has led to many conclusions and insights on the development of humans. The study of child development has been particularly investigated, allowing people to realise and facilitate the transformations that occur from infancy through childhood through adolescence.

This information pack covers several aspects of child development. First, it examines cognitive development, or the development of mental and motor skills. Cognitive development is described in this packet in terms of two of the most well known theories on the subject— Jean Piaget’s four stages of cognitive development and the information processing theory. The second aspect of child development that is examined is physical development. Physical development starts from the day of birth and advances rapidly. Changes can be seen weekly in infancy and, though the process of physical development slows drastically, development continues into adulthood. The third aspect of development that this pack examines is social and emotional development. Humans go from birth, where they only possess four innate emotions, to adolescence, where they face a complicated quest for identity.

Although this is an overview of child development, it is important to remember that each theory in child development has its strengths and weaknesses and each theory has been subject to both affirmations and criticisms. Another thing to think about while going through this information pack is the importance of outside factors on a child’s development. For example, children’s development is affected by the historical time in which they live, the culture they belong to, any social or demographic changes that take place in their culture, their family situation, and many other factors. Also, while development is explained in this pack by age group, these ages do not represent definite marks as to where a child should be at a specific age, and are instead rough guidelines to the typical progression of child development.

Cognitive Development

Piaget's Four Stages of Cognitive Development

Jean Piaget's (1896-1980) ideas on the stages of Cognitive Development comprise the most influential theory in all of developmental psychology. Piaget arrived at his theories through a series of 'clinical interviews.' These interviews were based on open ended questions and conversations with children, which were used to study children's thinking processes. Piaget identified four main stages of child development, the sensori-motor stage, the pre-operational stage, the concrete operational phase, and the formal operational phase. Piaget's stages emphasized a child's active mind, and showed that children should be encouraged to explore and experience the world around them. While it is true that Piaget felt that all children went through all four stages consecutively, it is important to realize that the ages listed are merely estimates and there is no strict dividing line between each stage.

Piaget's Stages of Cognitive Development

Stage	Age (yr)	Characteristics
Sensori-motor	0-2	Children learn about the world around them through their senses and motor activity. They develop the understanding that things do not disappear when they are out of sight. They are limited by the use of language and symbols. However, the capacity to create internal mental images begins to emerge. Piaget divided this stage into 6 sub-stages.
		<i>Sub-stage 1: Reflexes. (0-1 Month)</i> Infant has little control over behaviour and their range of behaviour is limited.
		<i>Sub-stage 2: Primary Circular Reactions. (1-4 Months)</i> This stage is marked by repeated actions focused around the infants own body.
		<i>Sub-stage 3: Secondary Circular Reactions. (4-8 Months)</i> Infants now realize the actions can have on their external environment and aim to repeat them.
		<i>Sub-stage 4: Coordination of Secondary Reactions. (8-12 Months)</i> Marked by the coordination of two or more strategies to reach a goal.
		<i>Sub-stage 5: Tertiary Circular Reactions (12-18 Months)</i> Actions are still repeated, but children in this sub-stage create variables within their repetitions.
		<i>Sub-stage 6: Invention of New Means Through Mental Combination (18-24 Months)</i> Children can understand the relations between two objects without actually acting on them. The toddler in this sub-stage is also able to symbolically represent other objects.

Pre-operational	2-7	Children in this stage can use language and symbols, but their understanding of the world is limited. This stage is classified by egocentricism; the child believes that everyone sees the world the way they do. A child in this stage will also have trouble understanding conservation—the idea that the quantity of something may remain the same even though the appearance has changed. For example, they would not comprehend that a tall, slim glass could hold as much water as a short, wide glass. Piaget divided this stage into two sub-stages:
		<i>Sub-stage 1: Pre-conceptual stage. (2-4 Years)</i> Rapid advancement in language occur. Symbolic thought begins to emerge through imaginative play. The child will have difficulty understanding the idea of another person's perspective.
		<i>Sub-stage 2: Intuitive period. (4-7 Years).</i> Ordering, classifying, and quantifying skills improve dramatically during this period.
Concrete operational	7-12	Children in this stage become less egocentric and can see things from other perspectives. They also develop a concrete understanding of conservation. However, the child is still tied to the immediate experience and may have difficulty with abstract terms or scientific and deductive reasoning.
Formal operational	12+	The adolescent develops the ability to communicate opinions on complex ethical issues. They can also reason deductively and formulate and test hypotheses.

While Piaget's theories have been the most influential, they have also been subject to several criticisms. Many psychologists feel that Piaget underestimated the influence of learning on the cognitive development of children. Others feel that Piaget's results would have differed if the basis of the tests had been altered. Also, Piaget did not acknowledge any cognitive development after the formal development stage, where other psychologists have found continued cognitive development post age twelve.

References

Kaplan, P.S. (1998) *The Human Odyssey: Life-Span Development*. New York: Brooks/Cole.
 Smith, P.K, Cowie, H., & Blades, M. (1998) *Understanding Children's Development*. Oxford: Blackwell

Cognitive Development

Information – Processing Approach

The Information Processing Theory is an approach to studying cognition through the way that information is taken in, processed, and acted upon. Perception, attention, and memory play an important role in this theory. Psychologists sometimes use the computer as a parallel to the human mind to illustrate this theory—a stimuli is ‘imputed’ into the mind where a series of ‘operations’ are performed which ‘encodes’ and ‘stores’ the information in a place where it can eventually be ‘retrieved’. Atkinson and Shiffrin developed the first model of the information-processing approach in 1960. Their model was based on the flow of information through the sensory register, the working memory, the short-term memory store, and the long-term memory store, as well as the application of controls to retrieve information. Brainerd built on the Atkinson Shiffrin model and identified five areas of information processing that may create difficulties in a child’s problem-solving performance.

- *Encoding limitations*: Children may not encode the necessary information about a problem. For example, they may see or hear one idea or symbol, but perceive it as something else.
- *Computational limitations*: Children encode the appropriate information but lack the appropriate strategies to apply the encoded information.
- *Retrieval limitations*: Children may be unable to retrieve the appropriate strategy or information from their long-term memory store.
- *Storage limitations*: Children may encode and retrieve all relevant information from long-term memory, but be unable to retain this information in working memory.
- *Work.space limitations*: Children may be unable to complete a problem because of limited working memory.

While there is no step-by-step outline of the stages of the information-processing theory, there are key features associated with different age groups.

Infanthood

- Infants are very sensitive to the conditions of a memory task. For example, studies have shown that if an infant is conditioned to perform a task on one specific mobile, then presented with a different mobile, they will not recall the task.
- New-borns can remember sounds over a twenty-four hour period.

- Two-month olds can recognize visual patterns and retain them for 24 hours.
- When three-month old children are presented with a picture of their mother and a picture of a stranger, they are able to differentiate the two.
- Six-month olds can recognize a face that they saw for only two minutes up to two weeks later.

Early Childhood

- There is a fourfold increase in attention span from age one to age four.
- The ability of selective attention—focusing on only one stimulus at a time—is limited, but improves rapidly.
- Children of this age can become easily confused when a situation becomes complex.
- Attention can be gained by use of sound, colour, and movement.
- Enhanced language ability allows children to store more memory with use of words.
- Children of this age begin to use strategies for memory, such as association.

Middle Childhood

- The ability to pay attention even when there is interference is much better than in early childhood.
- Children of this age are able to control attention and discriminate from important and unimportant information.
- Children of this age group began to employ verbal memory strategies without being prompted, as well as more sophisticated memory strategies such as categorization.
- Rates of forgetting decline significantly.

References

Kaplan, P.S. (1998) *The Human Odyssey: Life-Span Development*. New York: Brooks/Cole.
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Physical Development

There are two important principles of physical growth and development. The *cephalocaudal principle* is used to explain that growth begins at the head and moves downward. This principle accounts for why control of the arms advances ahead of control of the legs. The second principle, the *proximodistal principle* explains that internal organs develop faster than extremities. For example, control of the arms develops before control of the fingers.

Infant

- *Vision:* Contrary to what many professionals used to believe newborns are not born blind. However, they do not have a fully developed sense of vision. They are born with 20/200 vision and their best focal distance is nineteen centimetres. Infants prefer curved lines to straight lines, as well as patterns over colour and brightness.
- *Hearing:* Hearing is much more developed at birth than vision. Infants can hear from the moment of birth, and can react to pitch, volume, and rhythm soon after. Infants have a threshold 10 to 20 decibels higher than adults.
- *Smell:* Infants have a fully developed sense of smell, and can recognize the scent of their mother after only 7 days. Also, all infants, including bottle-fed infants, can recognize the scent of a nursing mother.
- *Pain:* Children are not very sensitive to pain during their birth, however this sense increases dramatically by the end of their first day.

Toddler

- The main difference between infants and toddlers is walking. Many smaller events lead to walking, including sitting with support, sitting alone, standing with help, and standing while holding furniture.
- Toddlers have improved coordination and can therefore carry out more than one task at a time.
- By two and a half, a toddler can jump from a standing position and land on both feet.

Early Childhood

- Expanding motor skills allow this age group to actively attend to the world around them. For example, walking becomes more natural, and therefore the child is able to concentrate on more than just walking.

- Growth slows, but it is still visible. This age group grows approximately seven centimetres a year.
- Body proportions change. Head size is 1/6 of the body size as opposed to 1/4 in infant and toddler years. This age group loses fat and gains muscle, thus losing baby-like appearance.
- Running is now used in everyday play activities.

Middle-Childhood

- Gradual changes in height and weight occur in this age group.
- Boys and girls weigh approximately the same at age eight.
- Shedding of deciduous teeth, or baby teeth occurs in this age group. The first adult tooth is the six-year molar.
- In this age group, arms and legs gradually become more slender, the abdomen become flatter, and the shoulders become squarer.

References

- Kaplan, P.S. (1998) *The Human Odyssey: Life-Span Development*. New York: Brooks/Cole.
- Woolfson, R.C. (2001) *Bright Child: Understand and stimulate your child's development*. London: Haymen.
- Code, J. 'Physical changes that take place from birth to one' *Early Child Educator*. February 2002. pp.22-24

Social and Emotional Development

Infants

- According to the *Differential Emotions Theory*, newborns possess only a limited number of emotions. These *innate emotions* include interest, disgust, physical distress, and startle. By the age of four months, most infants have the capacity for anger, surprise, joy, and sadness. Fear is added between month five and month 7. These emotions are called *primary emotions* because they are formed in the first year of life.
- Culture also has an important influence on emotional development. Certain cultures may value the repression and control of certain emotions. This is an example of *social referencing*, where one person uses information received from others to evaluate events and regulate behaviour.
- Sense of what others are feeling develops very quickly.
- Psychologist Erik Erikson believed that a child's general attitude towards people developed from their early relationships, or *attachments*. According to Erikson, an *attachment* is an emotional tie, binding people together over space and time. Erikson felt that *trust* is the positive outcome of an attachment and *mistrust* is the negative outcome of an attachment. A child's mother is generally his or her primary attachment, while the father, grandparents, and siblings will generally soon become secondary attachments.

Toddlers

- *Secondary emotions* are formed in the second year of life, and include shame, envy, guilt, contempt, and pride. These emotions require an elementary understanding of a sense of self and of others. For example, in order to experience the feeling of envy, one must have a sense of others to compare themselves with.
- Children of this age group are beginning to develop a keen awareness of their peers, and are developing relationships outside of their family. Subsequently, they are developing an awareness of rules and social conduct necessary for friendship, such as turn taking and sharing. However, these are not skills that children of this age group have a firm grasp on, so there may be some struggles. At the same time, there is a definite increase in confidence in social situations.
- Toddlers are developing a sense of independence. They want to do more for themselves and are, in fact, gaining the ability to accomplish these goals. However, sometimes their aspirations can be larger than their abilities, resulting in frustrations.
- Toddlers develop a firm sense of gender. They have an understanding of what it means to be a boy and what it means to be a girl. Children of this age group begin to form friendships with members of the same sex and are generally attracted to gender specific clothes and toys.

- Children of this age group experience an increase in their sense of morality. They understand what is right and what is wrong, and generally understand what is socially acceptable and what is not. By the age of four or five, a child may have a firm moral code and sense of justice.
- The self-esteem of a child is very sensitive at this age. An innocent remark made by another child may leave the child feeling sad and frustrated. Children have an intense need to feel liked and valued by their peers at this age.

Middle Childhood

- This stage of a child's life is marked by more gradual changes than those of infancy and early childhood.
- Social networks expand dramatically within this age group. The child now participates in friendships based on trust, loyalty, and faithfulness and value support, helping, sharing, and affection in their friendships.
- Children of this age now receive feedback from many sources, thus forming a greater sense of their abilities, strengths, and weaknesses. If children received positive feedback, Erikson felt that they would develop a sense of *industry* and feel that their work and opinions were valued. If they received negative feedback, Erikson felt that they would develop a sense of *inferiority*, where they would feel that they were not valued or appreciated.
- There is a subtle change in relationships with parents. Children are more independent and responsible.
- Children in this age group show an increase in the development of their sense of morality. They also experience an increase in the ability to experience *empathy*, an emotional response resulting from understanding another person's condition.

Adolescence

- The main characteristic of adolescence is the adolescent's quest for a sense of identity. Erik Erikson believed that the positive outcome of adolescence was a firm sense of *identity* where the negative consequence resulted in *role confusion*, or failure to develop an identity resulting in feelings of aimlessness.
- James Marcia felt that adolescents experienced achieving their sense of identity through *crisis*, facing and questioning aspects of one's identity, and *commitment*, making and acting on a decision in response to crisis. Marcia felt that adolescents could be divided into 4 categories concerning their quest for identity:

James Marcia's Four Identity Statuses

<i>Identity Status</i>	<i>Definition</i>
Identity Diffusion	An identity diffuser may or may not have experienced doubt over goals and values; he or she does not evidence a serious or realistic inclination to examine concerns about goals and values; he or she expresses no commitments to an ideology or to career plans
Identity Foreclosure	A foreclosure displays a commitment similar to that of the identity achiever but has not appraised alternatives to personal goals and values; choices often reflect parental preferences.
Identity Moratorium	A moratorium has questioned goals and values and considered alternatives, but is still doubtful and uncommitted; an active effort to become informed and to make suitable choice is predominant.
Identity Achievement	An identity achiever has experienced doubt in personal goals and values, has considered alternatives and is committed at least tentatively to some expressed value positions and career plans.

Table From : Kaplan, P.S. (1998) *The Human Odyssey: Life-Span Development*. New York: Brooks/Cole. P. 293

- Adolescents become less emotionally dependent on their parents, but more so on their peers
- Adolescents feel the need to redefine their roles within their family, as a transition to living independently.

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 Woolfson, R.C. (2001) *Bright Child: Understand and stimulate your child's development*. London: Haymen.

Websites, Contact Details and Resources for further information

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The National Children's Resource Centre library database contains many resources on child development - please contact your local centre to arrange a visit to browse more material on child development.