



Human Growth and Development - A Matter of Principles

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There is a set of principles that characterizes the pattern and process of growth and development. These **principles or characteristics** describe typical development as a predictable and orderly process; that is, we can predict how most children will develop and that they will develop at the same rate and at about the same time as other children. Although there are individual differences in children's personalities, activity levels, and timing of developmental milestones, such as ages and stages, the principles and characteristics of development are universal patterns.

Principles of Development

1. Development proceeds from the head downward.

This is called the **cephalocaudal principle**. This principle describes the direction of growth and development. According to this principle, the child gains control of the head first, then the arms, and then the legs. Infants develop control of the head and face movements within the first two months after birth. In the next few months, they are able to lift themselves up by using their arms. By 6 to 12 months of age, infants start to gain leg control and may be able to crawl, stand, or walk. Coordination of arms always precedes coordination of legs.

2. Development proceeds from the center of the body outward.

This is the principle of **proximodistal development** that also describes the direction of development. This means that the spinal cord develops before outer parts of the body. The child's arms develop before the hands and the hands and feet develop before the fingers and toes. Finger and toe muscles (used in fine motor dexterity) are the last to develop in physical development.

3. Development depends on maturation and learning.

Maturation refers to the sequential characteristic of biological growth and development. The biological changes occur in sequential order and give children new abilities. Changes in the brain and nervous system account largely for maturation. These changes in the brain and nervous system help children to improve in thinking (cognitive) and motor (physical) skills. Also, children must mature to a certain point before they can progress to new skills (**Readiness**). For example, a four-month-old cannot use language because the infant's brain has not matured enough to allow the child to talk. By two years old, the brain has developed further and with help from others, the child will have the capacity to say and understand words. Also, a child can't write or draw until he has developed the motor control to hold a pencil or crayon. Maturational patterns are innate, that is, genetically programmed. The



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child's environment and the learning that occurs as a result of the child's experiences largely determine whether the child will reach optimal development. A stimulating environment and varied experiences allow a child to develop to his or her potential.

4. Development proceeds from the simple (concrete) to the more complex.

Children use their cognitive and language skills to reason and solve problems. For example, learning relationships between things (how things are similar), or classification, is an important ability in cognitive development. The cognitive process of learning how an apple and orange are alike begins with the most simplistic or concrete thought of describing the two. Seeing no relationship, a preschool child will describe the objects according to some property of the object, such as color. Such a response would be, "An apple is red (or green) and an orange is orange." The first level of thinking about how objects are alike is to give a description or functional relationship (both concrete thoughts) between the two objects. "An apple and orange are round" and "An apple and orange are alike because you eat them" are typical responses of three, four and five year olds. As children develop further in cognitive skills, they are able to understand a higher and more complex relationship between objects and things; that is, that an apple and orange exist in a class called fruit. The child cognitively is then capable of classification.

5. Growth and development is a continuous process.

As a child develops, he or she adds to the skills already acquired and the new skills become the basis for further achievement and mastery of skills. Most children follow a similar pattern. Also, one stage of development lays the foundation for the next stage of development. For example, in motor development, there is a predictable sequence of developments that occur before walking. The infant lifts and turns the head before he or she can turn over. Infants can move their limbs (arms and legs) before grasping an object. Mastery of climbing stairs involves increasing skills from holding on to walking alone. By the age of four, most children

can walk up and down stairs with alternating feet. As in maturation, in order for children to write or draw, they must have developed the manual (hand) control to hold a pencil and crayon.

6. Growth and development proceed from the general to specific.

In motor development, the infant will be able to grasp an object with the whole hand before using only the thumb and forefinger. The infant's first motor movements are very generalized, undirected, and reflexive, waving arms or kicking before being able to reach or creep toward an object. Growth occurs from large muscle movements to more refined (smaller) muscle movements.

7. There are individual rates of growth and development.

Each child is different and the rates at which individual children grow is different. Although the patterns and sequences for growth and development are usually the same for all children, the rates at which individual children reach developmental stages will be different. Understanding this fact of individual differences in rates of development should cause us to be careful about using and relying on age and stage characteristics to describe or label children. There is a range of ages for any developmental task to take place. This dismisses the notion of the "average child". Some children will walk at ten months while others walk a few months older at eighteen months of age. Some children are more active while others are more passive. This does not mean that the passive child will be less intelligent as an adult. There is no validity to comparing one child's progress with or against another child. Rates of development also are not uniform within an individual child. For example, a child's intellectual development may progress faster than his emotional or social development.

An understanding of the principles of development helps us to plan appropriate activities and stimulating and enriching experiences for children, and provides a basis for understanding how to encourage and support young children's learning.