

## Text 2-1: Interaction between nature and nurture cont.

## E a r l y h u m a n d e v e l o p m e n t



our skin, eyes, and hair and general body size, among other things. These genetic determinants are expressed in development through the process of maturation – innately determined sequences of growth and change that are relatively independent of environmental events.

**E** For example, the human fetus develops within the mother's body according to a fairly fixed time schedule, and fetal behaviour, such as turning and kicking, also follows an orderly sequence that depends on the stage of growth. However, if the uterine environment is seriously abnormal in some way, maturational processes can be disrupted. For example, if the mother contracts German measles during the first three months of pregnancy (when the fetus's basic organ systems are developing according to the genetically programmed schedule), the infant may be born deaf, blind or brain-damaged, depending on which organ system was in a critical stage of development at the time of infection. Maternal malnutrition, smoking, and consumption of alcohol and drugs are among the other environmental factors that can affect the normal maturation of the fetus.

**F** Motor development after birth also illustrates the interaction between genetically programmed maturation and environmental influence. Virtually all children go through the same sequence of motor behaviours in the same order: rolling over, sitting without support, standing while holding on to furniture, crawling, and then walking. But children go through the sequence at different rates, and developmental psychologists began very early in the history of the discipline to ask

whether learning and experience play an important role in such differences.

**G** Although early studies suggested that the answer was no (McGraw, 1935/1975; Dennis & Dennis, 1940; Gesell & Thompson, 1929), more recent studies indicate that practice or extra stimulation can accelerate the appearance of motor behaviours to some extent. For example, newborn infants have a stepping reflex; if they are held in an upright position with their feet touching a solid surface, their legs will make stepping movements that are similar to walking. A group of infants who were given stepping practice for a few minutes several times a day during the first two months of life began walking five to seven weeks earlier than babies who had not had this practice (Zelazo, Zelazo & Kolb, 1972).

**H** The development of speech provides another example of the interaction between genetically determined characteristics and experience. In the course of normal development, all human infants learn to speak, but not until they have attained a certain level of neurological development; no infant less than a year old speaks in sentences. But children reared in an environment in which people talk to them and reward them for making speechlike sounds talk earlier than children who do not receive such attention. For example, children reared in middle-class American homes begin to speak at about one year of age. Children reared in San Marcos, a remote village in Guatemala, have little verbal interaction with adults and do not utter their first words until they are over two years old (Kagan, 1979).