

In normal children, mental development is characterized by the regular appearance of a set of abilities at successive stages. These include an enhancement of memory toward the end of the first month, speech sounds by the first birthday, connected speech by the second birthday, the ability to relate concepts and categories by the sixth birthday, and the ability to detect consistency or inconsistency in arguments by adolescence. The development of these increasingly more complex levels of intellectual competence is a function both of increasing brain maturity and of learning experiences. If appropriate kinds of stimulation are not available when the child is in an especially sensitive stage of development, some kinds of further biological and psychological development may be made more difficult or may even fail to occur.

This extraordinarily long period of human development—compared to that of other species—is related to the prominent role of the brain in human evolution. Most species are very limited in their repertory of behavior and depend for survival on predictable responses determined largely by genetic programming; mammals, and especially humans, depend far more on learned behavior. A prolonged childhood provides time and opportunities for the brain to develop into an effective instrument for intelligent living. This comes not only through play and interaction with older children and adults but also through exposure to the words and arts of people from other parts of the world and other times in history. The ability to learn persists throughout life and in some ways may improve as people build a base of ideas and come to understand how they learn best.

Developmental stages occur with somewhat different timing for different individuals, as a function of both differing physiological factors and differing experiences. Transition from one stage to another may be troublesome, particularly when biological changes are dramatic or when they are out of step with social abilities or others' expectations. Different societies place different meaning and importance on developmental stages and on the transitions from one to the next. For example, childhood is defined legally and socially as well as biologically, and its duration and meaning vary in different cultures and historical periods. In the United States, the onset of puberty—the maturation of the body in preparation for reproduction—occurs several years before an age generally considered physically and psychologically appropriate for parenthood and other adult functions (*Science for All Americans*, pp. 73–76).