Jean Piaget introduced his Theory of Cognitive Development early in the last century. Today researchers and educators have strived to find links between students’ cognitive stage of development and their capacity for learning (Ewing, 2011). Cognitive development was to be viewed as a continuum involving the interaction of four influences: maturation, active experience, social interaction, and a general progression of equilibrium (Ewing, 2011). Piaget’s theory states that there are four stages of cognitive development: sensorimotor, preoperational, concrete operational and formal operational.

The sensorimotor stage of development includes infants from birth to two years old. The interaction that infants receive from care givers during the sensorimotor stage of development is crucial. According to Sylva (2011), “Child development, especially in the early years, requires complex social interaction with warm, sensitive adults, as shown by theorists” (pg. 19). Positive interaction between adults and infants is linked to the development of language, cognition, emotion regulations, and responsiveness (Sylva, 2011). Good quality care relates positively to child outcomes. The Families, Children, and Child-Care (FCCC) study found that child who had been in child care homes during the first two years of life performed better at age three than did children whose earlier experiences had been in other types of care (Sylva, 2011). This study shows that children who receive quality at home care display greater expressive language and verbal comprehension. However, in the United States, studies have shown that more than fifty percent of American mothers return to work within three months of birth, with a high percentage of infants being in child care centers (Sylva, 2011). This means that a greater responsibility is put
on caregivers to surround infants with stimulating environments that foster wonder, curiosity, and provide a safe and secure place to learn.

It is clear that brain development is dramatically impacted by an infant’s environment. Infants will gradually start interacting with the environment as behavior moves away from inherited reflexes. At birth infants are born with natural inherited reflexes. This allows infants to learn about the environment and begin to understand the world. Reflexes may include rooting, gripping, toe curling, stepping, and sucking. The sucking reflex is introduced when something touches the roof of an infant’s mouth. Mouthing behaviors are common in this developmental stage. Parents and caregivers often give children toys that encourage oral exploration and discovery through the other senses. When an infant is about eight months old, he or she will have about one thousand-trillion connections between neurons, which is twice the amount of connections in an adult brain (Karmiloff-Smith, 2010). By the end of the sensorimotor stage of development infants practice the knowledge acquired and begin learning how to use it.

The next stage in Piaget’s Theory of Cognitive Development is the preoperational stage. This stage of development lasts from two years of age until age six or seven. According to Veraksa (2011), “The main tools that a child masters at this age (2-7 years) are figurative tools: sensory standards, various types of perceptual models, schemes and plans. Children begin to generalize their first-hand experience and identify the aspects of reality that are most significant for solving new practical tasks. At the same time, they form conscious and voluntary relationships to reality” (pg. 81). Children begin to give objects human characteristics and participate in pretend play. Often emotion, thoughts, and intentions are exuded through play. Though children possess the ability to play with one another, they lack the ability to understand one another.
During the preoperational stage of development, activities provide a special space in which the growth of abilities happens. Veraksa (2011) stated, "Children discover or ‘co-create’ the ‘logic’ of tools and the ‘logic’ of activities together with adults" (pg. 81). Care givers or parents arrange activities and pass experiences on during appropriate times. At this stage children are discovering the qualities of the outside world and are beginning to grasp reality. In order to grasp reality, opportunities must be given to observe and experiment. This allows children to get acquainted with natural phenomena (Veraksa, 2011). Along with observation and experimentation, children need to experience various situations.

Experiencing various situations includes not only direct interaction with reality but also the experiences of one’s own attitude to this reality (Veraksa, 2011). Adults must help children learn the qualities of the world. Expression can be communicated through painting, dancing, expressive movement, or fairy tale symbolism. Role playing, or modeling, can also help reproduce the activity of adults in play. This activity encourages children to represent the understanding of a role and express feelings toward it. This is also known as symbolization by which it is possible to use play as a method of correction of emotional abnormalities in development of children (Veraksa, 2011).

The concrete operational stage is the third stage in Piaget’s theory. This stage lasts from six or seven years until eleven. Children in this stage rapidly develop as individuals. Different subjects are included in school curriculum to bring school children cognitive development. Subjects taught in schools such as language, literature, social sciences, general sciences, mathematics, and art are primarily meant for cognition (Basantia, 2012). According to Basantia (2012), “As the child comes in contact with various environmental stimuli, she/he receives many things rapidly from the environment and develops the capacities, capabilities, and abilities,
aptitudes, etc., in different area/field of knowledge in accordance with the facilities/conditions provided to him/her at home, school as well as in the society” (pg. 69). The objectives of teaching change are in accordance with the demands of the society. Situations, time, place, needs, demands, and facilities available are all factors that could impact a child’s cognitive development.

Educators must have flexible approaches to teaching different subject areas due to the vast amount of diverse learners. Schools of the twenty-first century are increasing in student diversity within classrooms (Murry, 2012). Teachers can benefit from explicit preparation and professional development that enriches their capacities to build, and to elaborate upon, school-family connections (Murry, 2012). Different areas of teaching require students of this age to achieve specific competencies. Enhancement of growth in cognitive abilities across subject areas will increase if educators continue to exercise professionalism. Teachers must be aware that students needs change throughout the year and must be willing to work with students to meet competency goals. When teachers conduct different teaching strategies to accommodate for different learners, it enhances the achievement of the learners in different curricular and co-curricular areas (Basantia, 2012).

The final stage in Piaget’s Theory of Cognitive Development is the formal operational stage. This stage last from age eleven to sixteen and into adulthood. During this stage adolescents develop abstract thinking and reasoning. Skills such as logical thought, rational reasoning, and systematic planning begin to emerge. Science and mathematics is important in developing logical thinking due to the fact that it encourages hypothetical situations. When given situations, adolescents are able to think about a wide range of possible solutions. When problems come up adolescents, form a hypothesis, and then reason whether or not it is a good idea.
During this stage adolescents are able to make a hypothesis and revise the hypothesis when new information is given. This process is also known as the scientific method and is practiced throughout the curriculum spectrum.

When adolescents reach adulthood, declines in cognitive brain functioning can occur. Adults can maintain a high level of cognitive functioning as they age by staying physically, socially, and intellectually active (Bielak, 2012). Researchers do not have definite proof but, evidences favors maintaining an intellectually engaged and physically active lifestyle promotes successful cognitive aging. The declining of cognitive brain functioning is a gradual process and happens over a long period of time.

Jean Piaget’s Theory of Cognitive Development greatly impacted researchers and educators. Researchers started studying cognitive development in different ways and began to discover and reveal new information about cognition. Piaget’s theory also brought to attention the importance and impacts of developmentally appropriate practices. Educators now know the effect that environments, curriculum, materials, and instruction have on children and adolescents. Curriculum and instruction began to change based on this theory and has been influential in learning. Piaget stressed that though children and adolescents go through the same developmental stages, progression through the stages happens at different rates. Therefore, educators must show acceptance and understanding toward individual needs. Educational progress should be influenced by each child’s own course and rate of development.
Reference


