Executive Summary of Human Development

By Francisco J. Collazo Beauchamp

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John Locke (1632-1714): An empiricist, Locke believed that all that we become is the result of our experience with the environment. His basic model is the mechanical model, and he viewed humans as machines. Like machines, humans are seen as an organization of component parts. Children are born neutral and society molds them. The nurture of the environment plays a primary role in bringing about learning and development.

Jean Jacques Rousseau (1712-1778): His views were in contradiction with John Locke. The natural state of humans at birth is good. They have inborn capacities that allow them to develop along an optimal path and to become valuable and good adults. He perceived children as being good but corrupted by society. His philosophy is an organism approach, viewing humans as organisms, the basic model.

Dietrich Tiedemann (1748-1803)

Dietrich Tiedemann (1748-1803) was a German philosopher who was a native of Bremervörde. He was a student at the University of Göttingen and later a professor at Collegium Carolinum in Kassel (from 1776) and at the University of Marburg (from 1786). He was father to physiologist Friedrich Tiedemann (1781-1861). Tiedemann was an author of the six-volume “Geist der spekulativen Philosophie von Thales bis Berkeley” (The Spirit of Speculative Philosophy from Thales to Berkeley).

Tiedemann had strong disagreements regarding the philosophic beliefs of Immanuel Kant (1724-1804), of which he critiques in two publications; "On the Nature of Metaphysics: An Examination of Professor Kant's Principles-Against the Aesthetic" and "Continuation of the Examination of Professor Kant's Thoughts About the Nature of Metaphysics-Against the Analytic." Kant dismissed Tiedemann's arguments, which he reasoned were caused by a lack of understanding.

Tiedemann was a pioneer of empirical psychology, and an early practitioner concerning the scientific study of child development. He kept a journal of his son's sensory, motor, language, and cognitive behavior during the first thirty months of his life. Through his empirical observations he claimed that children possessed a "pre-linguistic knowledge."

1777: William Cadogen in England published advice on parenting to try to alleviate the worst of children’s suffering.

1787: Dietrich Tiedemann published the first child development textbook -- The Diary of Observations.

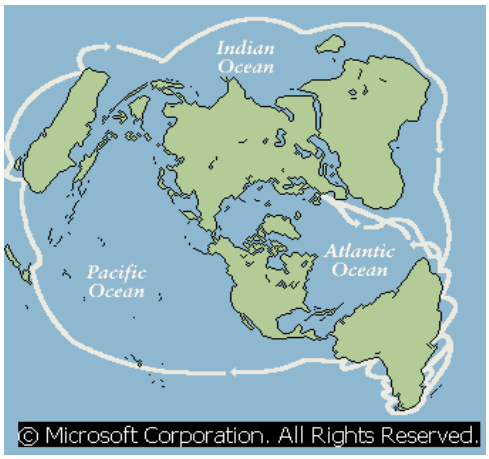
1882: Wilhelm Preyer published the second child development textbook written in the same manner as Tiedemann.

Charles Darwin (1809-1882) was greatly influenced by the geologist Adam Sedgwick and naturalist John Henslow in his development of the theory of natural selection. It has become the foundation concept supporting the theory of evolution.

Darwin's theory holds that environmental effects lead to varying degrees of reproductive success in individuals and groups of organisms. Natural selection tends to promote adaptation in organisms when necessary for survival. This revolutionary theory was published in 1859 in Darwin's now famous treatise *On the Origin of Species by Means of Natural Selection.* Charles Darwin laid the foundation of modern evolutionary theory with his concept of the development of all forms of life through the slow-working process of natural selection.

Henslow not only helped build Darwin's self-confidence but also taught his student to be a meticulous and painstaking observer of natural phenomena and collector of specimens.

The 22-year-old Darwin was taken aboard the English survey ship HMS *Beagle*, largely on Henslow's recommendation, as an unpaid naturalist on a scientific expedition around the world.



Voyage of the Beagle

On December 27, 1831, the 22-year old Charles Darwin joined the crew of the HMS *Beagle* as a naturalist. The five-year expedition collected hydrographic, geologic, and meteorologic data from South America and many other regions around the world. Darwin's own observations on this voyage led to his theory of natural selection. Darwin was most impressed with the effect that natural forces had on shaping Earth's surface.

At the time, most geologists adhered to the so-called catastrophist theory that Earth had experienced a succession of creations of animal and plant life, and that each creation had been destroyed by a sudden catastrophe, such as an upheaval or convulsion of Earth's surface. The

rest were visible only in the form of fossils. In the view of the catastrophists, species were individually created and immutable, that is, unchangeable for all time.

The catastrophist viewpoint (but not the immutability of species) was challenged by the English geologist Sir Charles Lyell in his three-volume work *Principles of Geology* (1830-1833). Lyell maintained that Earth's surface is undergoing constant change, the result of natural forces operating uniformly over long periods.

1887: Charles Darwin published his detailed observations of his son. Darwin discussed the development of emotions, casual thinking, the concept of self, and other domains of development.

Darwin's Rhea

In South America Darwin came across the rhea bird, which was much like the African ostrich but smaller. A specimen of this rarely seen bird was actually caught by Darwin and sent to the Zoological Society in England. It was later named *Rhea Darwinian* after the naturalist.

Aboard the *Beagle*, Darwin found himself fitting many of his observations into Lyell's general uniformitarian view. Darwin realized that some of his own observations of fossils and living plants and animals cast doubt on the Lyell-supported view that species were specially created. He noted, for example, that certain fossils of supposedly extinct species closely resembled living species in the same geographical area.

- On the Galápagos Islands, off the coast of Ecuador, he also observed that each island supported its own form of tortoise, mockingbird, and finch; the various forms were closely related but differed in structure and eating habits from island to island.
- Observations raised the question, for Darwin, of possible links between distinct but similar species.

Theory of Natural Selection

Darwin's studies of finches in the Galápagos Islands laid the groundwork for his theory of natural selection. His finding that each island was home to a similar yet distinct species of finch helped convince him of the gradual nature of evolution.

1836: Darwin began recording his ideas about changeability of species in his *Notebooks on the Transmutation of Species.*

Organism Evolution

Darwin's explanation for how organisms evolved was brought into sharp focus after he read *An Essay on the Principle of Population* (1798), by British economist Thomas Robert Malthus, who explained how human populations remain in balance. Malthus argued that any increase in the

availability of food for basic human survival could not match the geometrical rate of population growth. The latter, therefore, had to be checked by natural limitations such as famine and disease, or by social actions such as war.

1838: Darwin immediately applied Malthus's argument to animals and plants, and by 1838 he had arrived at a sketch of a theory of evolution through natural selection. For the next two decades he worked on his theory and other natural history projects.

1858: Darwin's theory was first announced in 1858 in a paper presented at the same time as one by Alfred Russel Wallace, a young naturalist who had come independently to the theory of natural selection.

1859: Darwin's complete theory was published in 1859, in *On the Origin of Species.* Often referred to as the "book that shook the world," the *Origin* sold out on the first day of publication and subsequently went through six editions. Darwin's theory of evolution by natural selection is essentially that, because of the food-supply problem described by Malthus, the young born to any species intensely compete for survival.

Those young that survive to produce the next generation tend to embody favorable natural variations (however slight the advantage may be)—the process of natural selection—and these variations are passed on by heredity. Therefore, each generation will improve adaptively over the preceding generations, and this gradual and continuous process is the source of the evolution of species.

Natural selection is only part of Darwin's vast conceptual scheme; he also introduced the concept that all related organisms are descended from common ancestors. Moreover, he provided additional support for the older concept that Earth itself is not static but evolving.

Reactions to the Theory

Caricature of Charles Darwin

1871: When Charles Darwin published *The Descent of Man* in 1871, he challenged the fundamental beliefs of most people by asserting that humans and apes had evolved from a common ancestor. Many critics of Darwin misunderstood his theory to mean that people had descended directly from apes.

1874: This caricature of Charles Darwin as an ape appeared in the *London Sketch Book* in 1874.

The reaction to the *Origin* was immediate. Some biologists argued that Darwin could not prove his hypothesis. Others criticized Darwin's concept of variation, arguing that he could explain neither the origin of variations nor how they were passed to succeeding generations.

20TH Century: This particular scientific objection was not answered until the birth of modern genetics in the early 20th century (Mendel's Laws). In fact, many scientists continued to express doubts for the following 50 to 80 years. The most publicized attacks on Darwin's ideas, however, came not from scientists but from religious opponents. The thought that living things had evolved by natural process denied the special creation of humankind and seemed to place humanity on a plane with the animals; both of these ideas were serious contradictions to orthodox theological opinion.

The importance of his work was well recognized by his contemporaries; Darwin was elected to the Royal Society (1839) and the French Academy of Sciences (1878). He was also honored by burial in Westminster Abbey after he died in Downe, Kent, on April 19, 1882.

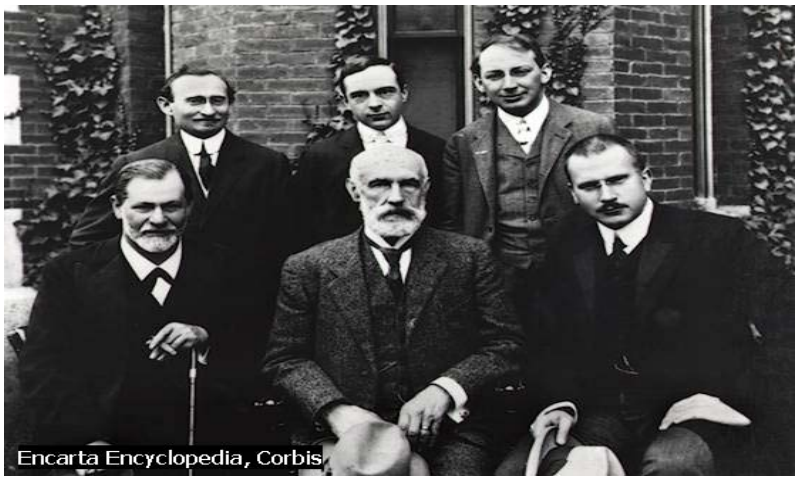
Contributed By: Garland E. Allen and Randy Bird

Sigmund Freud

Sigmund Freud (1856-1939), Austrian physician, neurologist, and founder of psychoanalysis, who created an entirely new approach to the understanding of human personality. Through his skill as a scientist, physician, and writer, Freud combined ideas prevalent at the time with his own observation and study to produce a major theory of psychology. Most importantly, he applied these ideas to medical practice in the treatment of mental illness. His newly created psychotherapy treatments and procedures, many of which in modified form are applied today, were based on his understanding of unconscious thought processes and their relationship to neurotic symptoms. Regarded with skepticism at the time, Freud's ideas have waxed and waned in acceptance ever since. Nevertheless, he is regarded as one of the greatest creative minds of the 20th century.

G. Stanley Hall

G. Stanley Hall (1844-1924), American psychologist and educator, born in Ashfield, Massachusetts, and educated at Williams College, Union Theological Seminary, and Harvard University.



Pioneers of Psychoanalysis

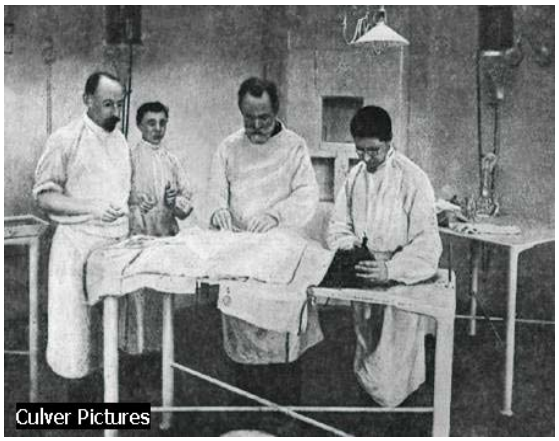
In 1909 pioneers of the growing psychoanalytic movement assembled at Clark University to hear lectures by Sigmund Freud, the founder of psychoanalysis. The group included, *top row, left to right,* A. A. Brill, Ernest Jones, Sandor Ferenczi, and *bottom row,* Freud, Clark University President C. Stanley Hall, and Swiss psychiatrist Carl G. Jung. The visit, the only one Freud made to the United States, broadened the influence and popularity of psychoanalysis. He taught philosophy and psychology at various colleges in the U.S.

Hall was instrumental in the development of the new science of educational psychology. His work in that field shows the influence of the American philosopher William James, with whom he had studied at Harvard. Hall was instrumental in the development of the new science of educational psychology. His work in that field shows the influence of the American philosopher William James, with whom he had studied at Harvard.

1887: C. Stanley Hall founded the *American Journal of Psychology.*

Ivan Petrovich Pavlov (1849-1936), Russian physiologist and Nobel laureate, was best known for his studies of reflex behavior.

Russian physiologist Ivan Pavlov won the 1904 Nobel Prize in physiology or medicine. Although best known for his work on reflex behavior, Palov made major scientific contributions to understanding the physiology of the digestive system.



Ivan Petrovich Pavlov

Russian psychologist Ivan Petrovich Pavlov's name has become synonymous with the research he conducted on reflex behavior in animals. Pavlov demonstrated in experiments that dogs that heard a bell ring at feedings became conditioned to salivate at the sound of the bell. Pavlov, who also studied the nervous system, heart, and digestive system, is shown here, *third from left,* at work in his lab.

1935: In spite of his opposition to Communism, Pavlov was allowed to continue his research in a laboratory built by the Soviet Government. Pavlov is noted for his pioneer work in the physiology of the heart, nervous system, and digestive system.

1889: His most famous experiments, begun in 1889, demonstrated the conditioned and unconditioned reflexes in dogs, and they had an influence on the development of physiologically oriented behaviorist theories of psychology during the early years of the 20th century.

1904: His work on the physiology of the digestive glands won him the 1904 Nobel Prize in physiology or medicine.

Alfred Binet

Alfred Binet (1857-1911), French psychologist known for his achievement in developing a standard intelligence test.

He is the father of intelligence testing and assessments of individual differences in children. He is responsible for the development of intelligence tests. The purpose of the research was to develop norms and scoring for the test questions. Piaget became interested in the errors the children made and how their errors seemed to fit specific patterns at different ages.

1905: Alfred Binet and colleague Théodore Simon devised one of the first tests of general intelligence. The test sought to identify French children likely to have difficulty in school so that

they could receive special education. An American version of Binet's test, the Stanford-Binet Intelligence Scale, is still used today.

1889: He helped to found the first psychological research laboratory in France. As director of the laboratory, Binet attempted to develop experimental techniques to measure intelligence and reasoning ability.

1895: Binet founded the first French psychological journal, *L'Année Psychologique* (The Psychological Year), and used it to publish the results of his research studies.

Binet's most important work was in intelligence testing. With his colleague, psychologist Théodore Simon, he devised a test to measure the mental ability of children.

The Binet - Simon scale first appeared in 1905. It was made up of problems designed to measure general intelligence, and items were graded according to age level. The child's score, based on the number of correct answers, yielded the child's mental age. Binet died in Paris on October 18, 1911. His pioneering work on intelligence measurement remained influential among psychologists in other countries. In the United States, great importance was attached to intelligence testing, and the Stanford-Binet Scale, an adaptation of Binet's original test, was widely used for many years.

Charles Horton Cooley

Charles Horton Cooley (1864-1929), United States sociologist. Cooley's great reputation as a sociologist rests chiefly upon three works: *Human Nature and the Social Order* (1902), *Social Organization* (1904), and *Social Process* (1918). Cooley developed a theory of social relations in which neither the individual nor the group was given precedence, but in which both were seen as indispensable and complementary to one another.

Cooley is known for his theories regarding the self, human nature, the "primary groups" in which human nature is developed, the interaction of leaders and the masses in public opinion, and the social significance of financial value.

Carl Gustav Jung

Carl Jung (1875-1961), Swiss psychiatrist, who founded the analytical school of psychology. Jung broadened Sigmund Freud's psychoanalytical approach, interpreting mental and emotional disturbances as an attempt to find personal and spiritual wholeness. He began his studies of human motivation in the early 1900s and created the school of psychoanalysis known as analytical psychology.

According to Jung, there are two basic personality types, extroverted and introverted, which alternate equally in the completely normal individual. Jung also believed that the unconscious

mind is formed by the *personal unconscious* (the repressed feelings and thoughts developed during an individual's life) and the *collective unconscious* (those inherited feelings, thoughts, and memories shared by all humanity).

With the publication of *Psychology of the Unconscious* (1912; trans. 1916), however, Jung declared his independence from Freud's narrowly sexual interpretation of the libido by showing the close parallels between ancient myths and psychotic fantasies and by explaining human motivation in terms of a larger creative energy.

A contemporary of Austrian psychoanalyst Sigmund Freud, Jung at first collaborated closely with Freud but eventually moved on to pursue his own theories, including the exploration of personality types. According to Jung, there are two basic personality types, extroverted and introverted, which alternate equally in the completely normal individual. Jung also believed that the unconscious mind is formed by the *personal unconscious,* the repressed feelings and thoughts developed during an individual's life) and the *collective unconscious,* those inherited feelings, thoughts, and memories shared by all humanity.

He began his work on word association, in which a patient's responses to stimulus words revealed what Jung called "complexes"—a term that has since become universal. These studies brought him international renown and led him to a close collaboration with Freud.

During his remaining 50 years Jung developed his theories, drawing on a wide knowledge of mythology and history; travels to diverse cultures in New Mexico, India, and Kenya; and especially the dreams and fantasies of his childhood. In 1921 he published a major work, *Psychological Types* (trans. 1923), in which he dealt with the relationship between the conscious and unconscious and proposed the now well-known personality types, extrovert and introvert.

He later made a distinction between the personal unconscious, or the repressed feelings and thoughts developed during an individual's life, and the collective unconscious, or those inherited feelings, thoughts, and memories shared by all humanity. The collective unconscious, according to Jung, is made up of what he called "archetypes," or primordial images. These correspond to such experiences as confronting death or choosing a mate and manifest themselves symbolically in religions, myths, fairy tales, and fantasies.

Jung's therapeutic approach aimed at reconciling the diverse states of personality, which he saw divided not only into the opposites of introvert and extrovert, but also into those of sensing and intuiting, and of feeling and thinking. By understanding how the personal unconscious integrates with the collective unconscious, Jung theorized, a patient can achieve a state of individuation, or wholeness of self. Jung wrote voluminously, especially on analytical methods and the relationships between psychotherapy and religious belief. He died on June 6, 1961 in Küsnacht.

John B. Watson

John B. Watson (1878-1958), American psychologist. John Broadus Watson was born in Greenville, South Carolina, and educated at Furman University and the University of Chicago. From 1908 to 1920 he was professor of psychology and director of the psychological laboratory at Johns Hopkins University.

Watson is noted as the founder and leading exponent of the school of psychology known as behaviorism, which restricts psychology to the study of objectively observable behavior and explains behavior in terms of stimulus and response.

1920's: He took the earlier work of Pavlov in Russia and developed a theory that came to dominate all of American psychology, as well as theoretical approaches to child development. His theory was called behaviorism and can be traced back to the mechanistic approach of John Locke and forward to the work of B.F. Skinner and Albert Bandura. The Watson's Behaviorist theory stressed the influence of the environment on a child, who as blank slate, could be made into anything one wanted. At this point, Psychology became the study of observable behavior, rather than the study of intellectual and psychological processes. His writings include *Animal Education* (1903), *Behavior* (1914), *Behaviorism* (1925; revised ed., 1930), and *Psychological Care of Infant and Child* (1928).

Melanie Klein (1882-1960), Austrian psychoanalyst, who devised therapeutic techniques for children that had great impact on present methods of child care and rearing. Born in Vienna and strongly influenced by Sigmund Freud's close associates Sándor Ferenczi and Karl Abraham, Klein after World War I began to develop methods of play therapy, showing that how children play with toys reveals earlier infantile fantasies and anxieties.

In *The Psychoanalysis of Children* (1932), she showed how these anxieties affected a child's developing ego, superego, and sexuality to bring about emotional disorders. Through her methods she attempted to relieve children of disabling guilt by having them direct toward the therapist the aggressive and Oedipal feelings they could not express to their parents. She showed how these anxieties affected a child's developing ego, superego, and sexuality (*see* Psychoanalysis) to bring about emotional disorders.

Karen Horney (1885-1952), German American psychiatrist.

1920-32: She was an instructor at the Institute for Psychoanalysis in Berlin during this period, when she immigrated to the United States. Horney founded a neo-Freudian school of psychoanalysis based on the conclusion that neuroses are the result of emotional conflicts arising from childhood experiences and later disturbances in interpersonal relationships.

Horney believed that such disturbances are conditioned to a large extent by the society in which an individual lives rather than solely by the instinctual drives postulated by Freud. Among her writings are *The Neurotic Personality of Our Time* (1936), *New Ways in Psychoanalysis* (1939), *Self-Analysis* (1942), *Our Inner Conflicts* (1945), and *Neurosis and Human Growth* (1950).

Karl von Frisch (1886-1982), Austrian zoologist and Nobel laureate, whose pioneering work on the chemical and visual perception of fish and bees led him to discover how honey bees orient and communicate. Frisch demonstrated that fishes, thought to be unable to see colors, not only could distinguish many different colors but were also highly sensitive to sounds.

When he began his research on honey bees, he found that their sense of smell was close to that of humans, and that they could distinguish all flower colors except red. He discovered that bees, through their perception of polarized light, were able to use the sun as a compass, and that even on overcast days they did not lose their sense of orientation. Using marked bees, he discovered that on returning to the hive a bee would perform a circling dance if it had found food less than a certain distance away. If the bee found food at a greater distance, it would perform a waggle dance.

1958: Frisch retired from the University of Munich, and in 1973 he shared the Nobel Prize in physiology or medicine with the Dutchman Nikolaas Tinbergen and the Austrian Konrad Lorenz, who were both cited for their individual studies in animal behavior.

René Árpád Spitz (1887 – September 11, 1974) was an American psychoanalyst of Hungaria

After finishing his medical studies in 1910 Spitz discovered the work of Sigmund Freud. In 1932 he left Austria and settled in Paris for the next six years; and taught psychoanalysis. In 1939 he emigrated to the United States and worked as a psychiatrist at the Mount Sinai hospital from 1940 until 1943, Spitz served as a visiting professor at several universities before settling in Colorado.

He based his observations and experiments on psychoanalytic findings, developed by Freud. We still find some of Freud's ideas in our present contemporary developmental thinking. Where Freud did psychoanalytic studies in adulthood, Spitz based his ideas on empirical research in infancy.

1935: It was that Spitz turned to the area of child development. He was one of the first researchers who used child observation. Not only disturbed children found his interest, but he also focused on the normal child development. He pointed out the effects of maternal and emotional deprivation. This became the field of his greatest contributions.

Spitz valued several aspects: Infant observation and assessment, anaclitic depression, hospitalism, developmental transitions, the processes of affective communication, and understanding developmental complexity. Spitz developed the term ‘anaclitic depression’ for partial emotional deprivation (the loss of a loved object). When the love object is returned to the child within a period of three to five months, recovery is prompt. If one deprives a child longer than five months, they will show the symptoms of increasingly serious deterioration. He called this total deprivation (hospitalism).

In 1945 he did research on hospitalism in children in a foundling home. He found that the developmental imbalance caused by the unfavorable environmental conditions during the children's first year produces a psychosomatic damage that cannot be repaired by normal measures. Another study of Spitz showed that under favorable circumstances and adequate organization a positive child development can be achieved. He stated that the methods in foundling homes should therefore be carefully evaluated.

Spitz recorded his research on film. The film Psychogenic Disease in Infancy (1952) shows the effects of emotional and maternal deprivation on attachment. The film was the cause of major change, especially in childcare sections of institutes, homes and hospitals, due to the fact that people gained knowledge about the impact of deprivation on child development.

Ego development: Spitz noted three organizing principles in the psychological development of the child: The smiling response, which appears at around three months old in the presence of an unspecified person; anxiety in the presence of a stranger, around the eighth month; semantic communication, in which the child learns how to be obstinate, which the psychoanalysts connect to the obsessional neurosis.

June 12, 1982: Spitz died in Munich.

Harry Stack Sullivan (1892-1949), American psychiatrist, noted for his theory of interpersonal relations, which holds that personality development and mental disorder are determined primarily by the interplay of personal and social forces rather than by constitutional factors in the individual. Sullivan was born in Norwich, New York, and educated at the Chicago College of Medicine and Surgery. In 1919 Sullivan began psychiatric work at Saint Elizabeth's Hospital in Washington, D.C.

1923 to 1930: He was involved in clinical research at Sheppard and Enoch Pratt Hospital in Towson, Maryland from 1923-1930. Subsequently he taught psychiatry at the medical schools of the University of Maryland and Georgetown University. Influenced by the American psychiatrist William Alanson White, Sullivan contributed greatly to the development of psychoanalytic techniques for treating psychotic patients, such as those with schizophrenia. His works include *The Interpersonal Theory of Psychiatry* (1953) and *Clinical Studies in Psychiatry* (1956).

Lev Vygotsky (1896–1934), Soviet psychologist, whose work on language and linguistic development is based on his supposition that higher cognitive processes are a product of social development.

He was active in a number of other fields during his brief academic career, including the psychological analysis of art and fables; child psychology, including the problems of deaf and retarded children; and the psychological analysis of brain-injured adults. From early research into the rules and development of tool-use and sign-use behavior, Vygotsky turned to symbolic

processes in language. He focused on the semantic structure of words and the way in which meanings of words change from emotive to concrete before becoming more abstract.

Vygotsky's thinking as a Russian theorist was that he believed that Marxism, with its focus on the value of tools and society, could provide a foundation for a better theory of psychological development. His cognitive mediation theory focused primarily on how social interactions influence cognitive development. Although all of Vygotsky's work was completed before social learning theory and cognitive revolution came about, his theory is currently increasing in influence on developmental researchers and educators.

- Vygotsky thought that the Bolshevik revolution would put an end to discrimination against Jews in Russia. He was strongly influenced by Hegel's and Marx's philosophies, which stressed the importance of society and the value of work in helping humans rise to something better.
- He believed that Marxist view, in which technology and tools transform society and help humans to evolve socially, could be the foundation for a new Marxist theory of human development that would better account for human functioning than what he had read up until that time. Vygotsky's theory dealt primarily with how we interact with adults to incorporate important symbolic tools from them and how adults aid in our development.
- He influenced the way we look at cooperation and how we approach education. His theory was somewhat narrow in what it covered and lacked precision in its processes. Part of this social view of development was dialectic view of change. In dialectic reasoning, one begins with a thesis or argument.
- For Vygotsky, dialectic was between the individual and others. In synthesis, they combined to move development at higher levels of thinking and functioning. These principles became the foundation of r Vygotsky's theory.
- The way we acquire psychological tools is from our culture; and the previous learning of our species.
- For Vygotsky, learning happens as a person masters new skills, aided by other people at the advanced edge of his zone of development. Learning comes first and brings about development.

As with learning theory, at first, outside stimuli elicit responses from an individual. Culture is handed down to us through our society, which is handed down to us through adults in our society, such as our parents. For Vygotsky, we can't function on an adult level without the culture of which we are a part bringing us along and providing what is necessary. Vygotsky and Piaget also held differing views about pretend play.

- Piaget saw pretend play (symbolic play) as an immature process and predominantly assimilation that distorted reality. To

- Value of pretend play is to give the child a way to "act out" situations she doesn't understand.
- Vygotsky viewed pretend play as the area where a child performs at the best level of his abilities. Play is a safe place to try things. One of the most important contributions of Vygotsky's theory has been the concept of the zone of proximal development.
- According to Vygotsky, the zone that covers an individual's current developmental level stretches from the level at which he child has completely mastered lower level skills and knowledge to the level at the upper limit of the individual's capacity, where a child can use a skill to know something only in the best of circumstances.
- The lower level of the zone is called actual level of development; everything below this level has already been mastered. Vygotsky propose a zone rather than a distinct point in the course of development. He believed that during social pretend play, the play context provides "scaffolding" for the child's development through her zone. His major works include *Thought and Language* (1937), *Selected Psychological Studies* (1956), and *Development of the Higher Mental Processes* (1960).

Jean Piaget (1896-1980), Swiss psychologist, best known for his pioneering work on the development of intelligence in children. His studies have had a major impact on the fields of psychology and education.

Jean Piaget is recognized for his studies of the mental development of children. Piaget was associated with several universities, and in 1955 served as director of the International Center for Epistemology in Geneva, Switzerland. In his work Piaget identified the child's four stages of mental growth.

In the sensor motor stage, occurring from birth to age 2, the child is concerned with gaining motor control and learning about physical objects. In the preoperational stage, from ages 2 to 7, the child is preoccupied with verbal skills. At this point the child can name objects and reason intuitively. In the concrete operational stage, from ages 7 to 12, the child begins to deal with abstract concepts such as numbers and relationships. Finally, in the formal operational stage, ages 12 to 15, the child begins to reason logically and systematically.

He wrote and published his first scientific paper, on the albino sparrow, at the age of ten. He taught at various European universities while he continued his research and writing. In 1955 he became director of the International Center for Epistemology at the University of Geneva, and later he was co director of the International Bureau of Education.

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numbers and relationships. Finally, in the formal operational stage, ages 12 to 15, the child begins to reason logically and systematically.

1970-1980: Piaget's theory completely dominated the study of child development, influencing almost all the questions and issues that were studied and the research methods that were used. Never in the study of development had there been such a complete paradigm shift such as complete revolution in the collective worldview, essentially from a mechanistic approach to an organismic approach.

- Piaget had been influencing European thinkers. He has had virtually little influence in the USA.
- Because e of the cognitive revolution, learning theory dwindled in influence, just as Freud's theory had done earlier.
- Piaget's influence has also abated, but just as Freud's theory became an implicit part of our thinking, so has Piaget's theory. Thus, most people who study development have internalized it into their views of human nature.
- One of the criticisms of Piaget's theory was that he took virtually no account of the influence of society and social interactions in explaining the processes of development.
- For Piaget, development comes from within and comes before learning. It makes possible learning of individual skills and knowledge. The focus is on the child's normal course and rate of development when he is left on his own.

Then, some of Piaget's writings in French were translated into English, and a few development theorists in the USA (in particular, John Flavell) began writing about his revolutionary theory of development. They introduced him to American researchers.

John Flavell and Henry Wellman have tracked the development of children's ability to understand how someone develops false beliefs o beliefs that vary from one's own.

Among Piaget's many books are:

The Language and Thought of the Child (1926)

Judgment and Reasoning in the Child (1928)

The Origin of Intelligence in Children (1954)

The Early Growth of Logic in the Child (1964)

Science of Education and the Psychology of the Child (1970).

He died in Geneva, on September 17, 1980.

Piaget's theory dealt primarily with how we change our cognitive skills over time and how we develop intelligent thought processes. His theory generated thousands of studies, probably more than any other theory, which have led to a wealth of knowledge about how children develop. He seemed to be biased toward logical mathematical operations, thus shortchanging more social and emotional domains. His stages may also have been too rigid.

Erich Fromm (1900-1980), American psychoanalyst, best known for his application of psychoanalytic theory to social and cultural problems. He was educated at the universities of Heidelberg and Munich and at the Psychoanalytic Institute in Berlin.

In 1934 he immigrated to the United States and subsequently became a citizen. Fromm was recognized as an important leader of contemporary psychoanalytic thought. According to his views, specific personality types are related to specific socioeconomic patterns. He broke away from biologically oriented theories to see humans as products of their culture. He also felt that attempts should be made to create harmony between the drives of the individual and the society in which the individual lives.

Fromm's many publications include:

Escape from Freedom (1941)

Man for Himself (1947)

The Forgotten Language (1951)

The Sane Society (1955)

The Art of Loving (1956)

Sigmund Freud's Mission (1956)

Beyond the Chains of Illusion (1962)

The Heart of Man (1964)

The Anatomy of Human Destructiveness (1973).

Erik Erikson (1902-1994), American psychoanalyst, who made major contributions to the field of psychology with his work on child development and on the identity crisis.

Erikson proposed a theory of human development that stressed the interaction between psychological and social forces. Unlike Sigmund Freud, the founder of psychoanalysis, Erikson viewed development as lifelong. He was born in Frankfurt, Germany and was an artist and teacher in the late 1920s when he met the Austrian psychoanalyst Anna Freud. With her

encouragement, he began studying at the Vienna Psychoanalytic Institute, where he specialized in child psychoanalysis.

During this period Erikson became interested in the influence of culture and society on child development. He studied groups of Native American children to help formulate his theories. As he continued his clinical work with young people, Erikson developed the concept of the "identity crisis," an inevitable conflict that accompanies the growth of a sense of identity in late adolescence.

In 1933 he immigrated to the United States, first joining the faculty of the Harvard Medical School and then moving to Yale University. During this period Erikson became interested in the influence of culture and society on child development. He studied groups of Native American children to help formulate his theories. These studies enabled him to correlate personality growth with parental and societal values.

Erikson's theory dealt primarily with the development of identity and the joint issue of connectedness and independence. He continued a good guide to the issues people face throughout their life spans and the sequence of focus on these issues. He was biased by his own struggles with identity confusion as he grew up and his attempts to reconcile this theory with Freud's stages.

His first book, *Childhood and Society* (1950), became a classic in the field. As he continued his clinical work with young people, Erikson developed the concept of the "identity crisis," an inevitable conflict that accompanies the growth of a sense of identity in late adolescence.

Among his books are:

Childhood and Society (1950)

Young Man Luther (1958)

Insight and Responsibility (1964)

Identity (1968)

Gandhi's Truth (1969), which won a Pulitzer Prize and a National Book Award

Vital Involvement in Old Age (1986).

Conrad Lorenz (1903-1989), Austrian zoologist and Nobel Laureate, who was instrumental in the founding of ethology. Conrad Zacharias Lorenz was born in Vienna and earned a medical degree and a Ph.D. in zoology (1933) at Vienna University. In 1973, he shared the Nobel Prize

in physiology or medicine with Nikolas Tinbergen and Karl von Frisch for their work in ethology.

One of the founders of the science of animal behavior, Lorenz theorized that many animal and human tendencies are based on latent genetic patterns and are triggered by events in the environment. He became well known for his efforts to identify what he called fixed action patterns, which he believed were genetically determined and elicited, or released, by the particular environment of an animal species. Such patterns are as important a part of an animal's survival repertoire as its physiological characteristics, and these two factors had a similar evolutionary development.

He is perhaps best known for his discovery that auditory and visual stimuli from an animal's parents are needed to induce the young to follow the parents, but that any object—including a human being—could elicit the same response by exhibiting the same stimuli. This phenomenon he called imprinting. Lorenz proposed in *Das sogenannte Böse* (1963; *On Aggression* 1966) that human fighting and warfare had genetic origins in the kind of behavior observed in lower animals when defending a territory. The theory gained popularity but evoked sharp criticism by authorities in many fields.

B. F. Skinner (1904-1990), American psychologist. He became famous for his pioneering research on learning and behavior. During his 60-year career, Skinner discovered important principles of operant conditioning, a type of learning that involves reinforcement and punishment. A strict behaviorist, Skinner believed that operant conditioning could explain even the most complex of human behaviors.

Skinner became the foremost exponent in the U.S. of the behaviorist school of psychology, in which human behavior is explained in terms of physiological responses to external stimuli. He also originated programmed instruction, a teaching technique in which the student is presented a series of ordered, discrete bits of information, each of which he or she must understand before proceeding to the next stage in the series. A variety of teaching machines have been designed that incorporate the ideas of Skinner.

Among his important works are:

Behavior of Organisms (1938)

Walden Two (1948)

The Technology of Teaching (1968)

Freedom and Dignity (1971), Skinner advocated mass conditioning as a means of social control.

Particulars of My Life (1976)

Reflections on Behaviorism and Society (1978).

Nikolaas Tinbergen (1907-88), Dutch zoologist and Nobel laureate, noted for his studies of animal behavior.

Nikolaas Tinbergen won the 1973 Nobel Prize in physiology or medicine. Tinbergen was cited for his studies of individual and social behavior in groups of animals. He shared the Nobel Prize in physiology or medicine with two other zoologists, the German Karl von Frisch and the Austrian Konrad Lorenz. Together, they were cited for their discoveries concerning the ways in which individual and social behavior patterns develop in groupings of animals.

He began his studies of animal behavior as a child. His book *The Herring Gull's World* (1960) describes the studies with gulls for which he is best known, including an examination of food-begging techniques.

John Bowlby (1907–1990), English psychologist, and author of *Child Care and the Growth of Love* (1953), in which he argued that a home environment for children is preferable to an institution, and stressed the value of the bond between mother and child. He was a consultant in mental health for the World Health Organization from 1972 to 1990.

Bowlby and Ainsworth's theory dealt primarily with the development of close relationships and their functions. Their theory has generated many new findings about how attachments form and how relationships affect subsequent behaviors. Bowlby, however, saw development as being mainly instinctual. Ainsworth saw development as tied to whether parents were good or bad or consistent.

Famous Bowlby quote: "Among the most significant developments of psychiatry during the past quarter of a century has been the steady growth of evidence that the quality of parental care which a child receives in his earliest years is of vital importance to his future mental health."

Mary D. Salter Ainsworth (December 1913 – 1999) was a Canadian developmental psychologist known for her work in early emotional attachment with "The Strange Situation" as well as her work in the development of Attachment Theory.

While in England, Ainsworth joined the research team at Tavistock Clinic investigating the effects of maternal separation on child development. Comparison of disrupted mother-child bonds to normal mother-child relationship showed that a child's lack of a mother figure leads to "adverse development effects." In 1954, she left Tavistock Clinic to do research in Africa, where she carried out her longitudinal field study of mother-infant interaction.

She and her colleagues developed the Strange Situation Procedure, which is a widely used, well researched and validated, method of assessing an infant's pattern and style of attachment to a caregiver. Ainsworth's theory to discuss the process whereby trust and connectedness develop as a foundation for autonomy and independence.

In 1970 Ainsworth devised a procedure, called *A Strange Situation*, to observe attachment relationships between a caregiver and child. In this procedure of the strange situation: the child

is observed playing for 20 minutes while caregivers and strangers enter and leave the room, recreating the flow of the familiar and unfamiliar presence in most children's lives. The situation varies in stressfulness and the child's responses are observed. Four aspects of the child's behavior are observed:

1. The amount of exploration (e.g. playing with new toys) the child engages in throughout.
2. The child's reactions to the departure of its caregiver.
3. The stranger anxiety (when the baby is alone with the stranger).
4. The child's reunion behavior with its caregiver.

Secure attachment

Securely attached children are best able to explore when they have the knowledge of a secure base to return to in times of need (also known as "rapprochement," meaning in French "bring together"). Therefore, secure attachment can be seen as the most adaptive attachment style. According to some psychological researchers, a child becomes securely attached when the mother is available and able to meet the needs of the child in a responsive and appropriate manner. Others have pointed out that there are also other determinants of the child's attachment, and that behavior of the parent may in turn be influenced by the child's behavior.

Anxious-resistant insecure attachment

A child with an anxious-resistant attachment style is anxious of exploration and of strangers, even when the mother is present. According to some psychological researchers, this style develops from a mothering style which is engaged but on the mother's own terms. This is now more commonly known as ambivalent/resistant attachment as the child can't make up his mind about what he wants; when he is held he wants to be left alone and when he is left he clings to the mother.

Anxious-avoidant insecure attachment

A child with an anxious-avoidant attachment style will avoid or ignore the caregiver - showing little emotion when the caregiver departs or returns. Strangers will not be treated much differently from the caregiver. There is not much emotional range displayed regardless of who is in the room or if it is empty. This style of attachment develops from a care-giving style which is more disengaged. The child's needs are frequently not met and the child comes to believe that communication of needs has no influence on the caregiver.

Disorganized/disoriented attachment

A fourth category was added by Ainsworth's colleague Mary Main and Ainsworth accepted the validity of this modification. A child may cry during separation but avoid the mother when she returns or may approach the mother, then freeze or fall to the floor. Some show stereotyped behavior, rocking to and fro or repeatedly hitting themselves.

Main and Hesse found that most of the mothers of these children had suffered major losses or other trauma shortly before or after the birth of the infant and had reacted by becoming severely depressed. In fact, 56% of mothers who had lost a parent by death before they completed high school subsequently had children with disorganized attachments.

Critique of the Strange Situation Protocol

Michael Rutter describes the procedure in the following terms in 'The Clinical Implications of Attachment Concepts' from the Journal of Child Psychology and Psychiatry, Volume 36 No 4, pp. 552–553. To begin with, it is very dependent on brief separations and reunions having the same meaning for all children. This maybe a major constraint when applying the procedure in cultures, such as that in Japan where infants are rarely separated from their mothers in ordinary circumstances.

Also, because older children have a cognitive capacity to maintain relationships when the older person is not present, separation may not provide the same stress for them. Despite its manifest strengths, the procedure is based on just 20 minutes of behavior. It can be scarcely expected to tap all the relevant qualities of a child's attachment relationships. A further constraint is that the coding procedure results in discrete categories rather than continuously distributed dimensions.

Ecological validity and universality of Strange Situation attachment classification distributions

With respect to the ecological validity of the Strange Situation, a meta-analysis of 2,000 infant-parent dyads, including several from studies with non-Western language and/or cultural bases found the global distribution of attachment categorizations. The Japanese findings have sparked the most controversy as to the meaning of individual differences in attachment behavior as originally identified by Ainsworth et al. However, controversy has been raised over a few cultural differences in these rates of 'global' attachment classification distributions. In particular, two studies diverged from the global distributions of attachment classifications noted above.

One study was conducted in North Germany in which more avoidant (A) infants were found than global norms would suggest, and the other in Sapporo, Japan where more resistant (C) infants were found. Of these two concepts of amaze and its relevance to questions concerning whether the insecure-resistant (C) style of interaction may be engendered in Japanese infants as a result of the cultural practice of amaze.

Attachment measurement: discrete or continuous

Regarding the issue of whether the breadth of infant attachment functioning can be captured by a categorical classification scheme, it should be noted that continuous measures of attachment security have been developed which have demonstrated adequate psychometric properties. These have been used either individually or in conjunction with discrete attachment classifications in many published reports.

Dr. John H. Flavell (born 1928) is an American developmental psychologist specializing in children's cognitive development. Through the discovery of new developmental phenomena and

analysis of the theories of Jean Piaget, Flavell shifted the direction of developmental psychology in the United States.

Flavell has conducted extensive research into meta-cognition and the child's theory of mind. One of his most famous contributions to the field is his work on children's developing understanding of the distinction between appearance and reality. These studies assessed young children's ability to acknowledge that a given object is really one kind of thing, yet appears to be another kind of thing, or that a given piece of material is really one color, yet appears to be another color under particular circumstances.

Flavell and his colleagues have found that whereas most three-year-olds fail these tasks, five-year-olds and older four-year-olds succeed on them. Flavell interprets this developmental difference as suggesting that children acquire the notion of mental representation of reality as distinct from reality itself. The appearance-reality paradigm, along with the false-belief task, is widely used as diagnostic of theory of mind development during early childhood. Flavell's other work has addressed children's developing understanding of perception, perspective-taking, and their introspective insight into their own subjective experiences.

Jerome Kagan (born 1929) is one of the key pioneers of developmental psychology. He has shown that an infant's "temperament" is quite stable over time, in that certain behaviors in infancy are predictive of certain other behavior patterns in adolescence. Kagan was listed as the 22nd most eminent psychologist of the 20th Century, just above Carl Jung.

Research

While at Fels, Kagan did extensive research on personality traits beginning with infancy and continued through adulthood. During this time Kagan conducted longitudinal studies to which he followed multiple subjects into adulthood, specifically looking at their personality traits. Upon reexamining the subjects, later into adulthood, Kagan found little evidence to support his behaviorist theory and began to take notice of a possible biological influence.

In 1971, after accepting his current position with Harvard University, Kagan spent a year conducting field research in a small Indian village in Guatemala. He began his work on temperament after his research in Guatemala. During this time, Kagan discovered that biological factors play a huge role in development and an even larger part in child development.

According to Kagan, (conventionally), "temperament refers to stable behavioral and emotional reactions that appear early and are influenced in part by genetic constitution." Kagan was primarily focused on children’s fear and apprehension. It was during this time that Kagan discovered children as having one of two types of temperament: inhibited and uninhibited. Inhibited temperament, also known as highly reactive, can best be described as a child being more reserved, guarded, and introverted.

Uninhibited, or low reactive, children tend to be more outgoing, extroverted, and are very comfortable in social situations. As a result of his ground breaking work on temperament, we know that these characteristics have the ability to influence later behavior depending on how they interact with the environment.

Kagan rejects "attachment theory," British psychiatrist John Bowlby's notion that the bond between caregiver and infant is crucially influential in later emotional and even intellectual growth. He has also criticized Judith Rich Harris's theory that peer groups matter more than parents in influencing the personality of children. He believes that both sides in the nature/nurture debates were too rigid, and that the development of personality is still not well understood.

Henry M. Wellman, PhD, Research Professor, CHGD
Harold W. Stevenson Collegiate Professor of Psychology, College of LS&A

Wellman is a developmental psychologist specializing in cognitive development. His research focuses on core cognitive domains. Such domains, like the child's understanding of language or space, are rapidly acquired cognitive structures that frame and encourage further developments. Much of his current research focuses on the child's developing understanding of people or "theory of mind." This term refers to our everyday understanding of persons in terms of their inner psychological states and processes.

We see an actor's external behavior, for example, as a product of his or her internal beliefs, desires, emotions, and intentions. Wellman's research focuses on this question in children from infancy to adulthood, growing up in this and other cultures, as well as impaired children (such as individuals with autism) that seem to fail to develop a normal understanding of people's mental lives.

His research is cognitive and cultural -- he researches the differing conceptions of persons acquired by children growing up in different cultural communities, and very basic social conceptions in infants and young preschoolers, that allow cultural learnings to occur in the first place. Wellman received a Merit Award (Method to Extend Research in Time) from NICHD in October, 2005, for his work on child's theory of mind.

Susan Harter, Professor Emeritus, Developmental

Dr. Harter's research in the area of socio-emotional development focuses on the self-system, broadly defined. One focus has been the development of a theoretically derived model of the causes and consequences of self-esteem. This work builds upon the conceptual formulations of James (1893) who postulated that self-esteem reflected competence in areas where success was deemed important, and of Cooley (1902), for whom self-esteem was the incorporation of the attitudes that significant others held toward the self.

The findings reveal that self-esteem is a direct function of competence in domains of importance as well as the approval of significant others. Important consequences of self-esteem have also been identified, for example, affect along a dimension of cheerful to depressed. Those with low self-esteem are invariably depressed, and among many adolescents, such depression, in turn, leads to thoughts of suicide, an issue of clinical significance. Most recently, this work has demonstrated that there are multiple pathways to depression, representing different combinations of feelings of inadequacy and lack of support (e.g., from peers versus parents).

Martin E. P. Seligman (born August 12, 1942, in Albany, New York) is an American psychologist and author of self-help books. His theory of "learned helplessness" is widely respected among scientific psychologists.

According to Haggbloom et al's study of the most eminent psychologists of the 20th century, Seligman was the 13th most frequently cited psychologist in introductory psychology textbooks throughout the century, as well as the 31st most eminent overall.

Seligman is the Zellerbach Family Professor of Psychology in the University of Pennsylvania's Department of Psychology. He was previously the Director of the Clinical Training Program in the department. Seligman was elected President of the American Psychological Association by the widest margin in its history and served in that capacity during the 1998 term. He is the founding editor-in-chief of Prevention and Treatment Magazine (the APA electronic journal), and is on the board of advisers of Parents. Seligman has written about positive psychology topics such as The Optimistic Child, Child's Play, Learned Optimism, and, in 2002, Authentic Happiness.

Carol S. Dweck (born October 17, 1946) is a professor at Stanford University and a social psychologist. She graduated from Barnard College in 1967 and earned a Ph.D. from Yale University in 1972. She taught at Columbia University, Harvard University, and the University of Illinois before joining the Stanford faculty in 2004.

Professor Dweck has primary research interests in motivation, personality, and development. Her key contribution to social psychology relates to implicit theories of intelligence. According to Dweck, individuals can be placed on a continuum according to their implicit views of where ability comes from. Some believe their success is based on innate ability; these are said to have a "fixed" theory of intelligence. Others, who believe their success is based on hard work and learning, are said to have a "growth" or an "incremental" theory of intelligence.

Individuals may not necessarily be aware of their own mindset, but their mindset can still be discerned based on their behavior. It is especially evident in their reaction to failure. Fixed-mindset individuals dread failure because it is a negative statement on their basic abilities, while growth mindset individuals don't mind failure as much because they realize their performance can be improved. These two mindsets play an important role in all aspects of a person's life. This is important because (1) individuals with a "growth" theory are more likely to continue

working hard despite setbacks, and (2) individuals' theories of intelligence can be affected by subtle environmental cues.

Biography of Dr. Robert S. Ziegler, National Mathematics Advisory Panel

Robert Ziegler is Teresa Heinz Professor of Cognitive Psychology at Carnegie Mellon University. His research focuses on children's thinking, particularly mathematical and scientific thinking.

Dr. Ziegler's current research focuses on the development of estimation skills and how children's basic understanding of numbers influences their estimation and overall math achievement. The research examines not only how children's understanding changes with age but also why some children within a given grade are so much more proficient than others at math.

The general overlapping waves theory of cognitive development, described by Ziegler in his 1996 book "Emerging Minds," has proven useful for understanding the acquisition of a variety of math skills and concepts, including arithmetic, proportionality, mathematical equality, decimal fractions, number conservation, and estimation.

Overlapping waves theory emphasizes that individual children know and use a variety of strategies for solving problems, that they choose among them in adaptive ways, and that development involves not only acquisition of new strategies and ways of thinking about problems but also increasingly adaptive choices among the approaches, increasing reliance on the most effective approaches, and increasingly efficient execution of whichever approach is chosen.

In addition to unifying a wide range of empirical findings, the theory also has yielded practical applications, including development of board games that yield broad improvement in the numerical understanding of low-income preschoolers.

Robyn L. Fivush, Role: Senior Fellow
Education: PhD, Graduate Center of the City University of New York , Chair, Department of Psychology, Samuel Candler Dobbs Professor of Psychology, Emory University

Robyn Fivush is known for her work on the social construction of autobiographical memory. She has served as director and faculty member of Emory's Institute for Women's Studies. Her work focuses on early memory with an emphasis on the social construction of autobiographical memory and the relations among memory, narrative, trauma, and coping. She has written numerous journal articles and chapters and is the co-editor of several books.

William Blatz and the Dionne quintuplets, Canadian Psychology, May 1997 by Prochner, Larry, Doyon, Pierre

1920-1930: It was within this research context that the Dionne Quintuplets were studied over a three-year period by Dr. William Blatz and his team from the Toronto child study center, which was called St. George's School of Child Study (SGSCS) in the 1920s and 1930s. The story of the Dionne sisters is a familiar part of Canadian social history, and one which has recently been revisited by sociologists, historians, and filmmakers.

The girls were born in May, 1934 in a farmhouse near Callandar, Ontario, a rural northern community. Their parents were French-Canadian, and poor, and there were already five other children in the family. Soon after the birth of the Quintuplets the government of Ontario assumed guardianship of the children. The physician placed in charge of the Quintuplets was the local doctor, Allan Dafoe, who had assisted the mid-wife near the end of the birth.

The girls were removed from their family to a special compound across the road from the home of their parents and siblings. They lived in the "Dafoe Hospital" from the age of 2 months until they were 8 years-of-age. During this time hundreds of thousands of visitors came to view the Quintuplets at play through a specially designed observation screen.

April 1935 to Feb. 1938: From the time the children were 11 months old until they were 44 months, they were also the focus of William Blatz's research program. The studies consisted of descriptions of the physical, intellectual, social, emotional, and language development of the girls over a period of almost three years, in the context of a nursery education system adapted from St. George's Nursery School in Toronto. The team aimed to determine the extent of differences in development among the Quintuplets, and the differences between the Quintuplets and other children.

1920-1930: A general theme was the influence of environment and genetics in development, a hotly contested issue. The project culminated in 1937 with a conference dedicated solely to the Dionne studies. The results of the research were unspectacular and were largely ignored by the scientific community, despite their promotion in a special conference hosted by Blatz at the Dionne Quintuplets' expense. Nonetheless, in the contemporary view, the girls were ideal research subjects.

Dr. Nancy Julia Chodorow is a feminist sociologist and psychoanalyst. She has written a number of influential books, including The *Reproduction of Mothering: Psychoanalysis and the Sociology of Gender* (1978); *Feminism and Psychoanalytic Theory* (1989); *Femininities, Masculinities, Sexualities: Freud and Beyond* (1994); and *The Power of Feelings: Personal Meaning in Psychoanalysis, Gender, and Culture* (1999). She is widely regarded as a leading psychoanalytic feminist theorist.

Chodorow sees gender differences as compromise formations of the Oedipal complex. She begins with Freud’s assertion that the individual is born bisexual and that the child's mother is its first sexual object. Chodorow, drawing on the work of Karen Horney and Melanie Klein, notes that the child forms its ego in reaction to the dominating figure of the mother. The male child

forms this sense of independent agency easily, identifying with the agency and freedom of the father and emulating his possessive interest in the mother/wife.

This task is not as simple for the female child. The mother identifies with her more strongly, and the daughter attempts to make the father her new love object, but is stymied in her ego formation by the intense bond with the mother. Where male children typically experience love as a dyadic relationship, daughters are caught in a libidinal triangle where the ego is pulled between love for the father, the love of the mother, and concern and worry over the relationship of the father to the mother.

For Chodorow, the contrast between the dyadic and triadic first love experiences explains the social construction of gender roles, the universal degradation of women in culture, cross-cultural patterns in male behavior, and marital strain in the West after Second Wave feminism. In marriage, the woman takes less of an interest in sex and more in the children. Her ambivalence towards sex eventually drives the male away. She devotes her energies to the children once she does reach sexual maturity.

Everett Waters, PhD, University of Minnesota
Institute of Child Development (1977)
Professor, Social/Developmental Psychology

Areas of Interest: Attachment and secure base relationships (infancy to adulthood), observation and measurement.

Current Research: Dr. Waters is engaged in a wide range of research on attachment relationships from infancy through adulthood. This work focuses on direct observations of secure base behavior in naturalistic and laboratory settings, and on the mental representations of experience in secure base relationships. Recent studies have examined parent-child and marital relationships over periods of 10-20 years. As co-founder of the New York Attachment Consortium, Dr. Waters is also involved in a wide range of collaborative research and programs that advance the Bowlby-Ainsworth tradition of attachment study.

Bandura’s accomplishments, Educational psychology

Different theories of learning help educational psychologists understand, predict, and control human behavior. Educational psychologists have worked out mathematical models of learning that predict the probability of a person's making a correct response; these mathematical theories are used to design computerized instruction in reading, mathematics, and second-language learning.

To understand a child's emotional aversion to school, the respondent (or classical) conditioning theory originated by the Russian physiologist Ivan Pavlov may be used. Pavlov's theory describes how stimuli that occur together may come to evoke similar responses. This theory describes how rewards shape and maintain behavior. School violence and vandalism may be

partially understood through the social-learning theory of the Canadian-American psychologist Albert Bandura, which describes the conditions under which people learn to imitate models. Information-processing theory is used to understand how people solve problems by analogy and metaphor.

Child Development Learning

Another kind of learning, *classical conditioning,* occurs when a person makes a mental association between two events or stimuli. When conditioning has occurred, merely encountering the first stimulus produces a response once associated only with the second stimulus. For example, babies begin sucking when they are put in a familiar nursing posture, children fear dogs whose barking has startled them in the past, and students cringe at the sound of school bells that signal that they are tardy.

Classical conditioning was first studied by Russian physiologist Ivan Pavlov in the early 1900s and later by American psychologist John B. Watson.

Learning by Observation

According to Canadian-American psychologist Bandura, this type of learning plays an important role in a child's personality development. Bandura found evidence that children learn traits such as industriousness, honesty, self-control, aggressiveness, and impulsiveness in part by imitating parents, other family members, and friends.

Social Learning Theory

Different theories of learning help educational psychologists understand, predict, and control human behavior. Pavlov's theory describes how stimuli that occur together may come to evoke similar responses. To inquire about the origins of a child's disruptive classroom behavior, the operant (or instrumental) conditioning theory of Thorndike and the American psychologist B. F. Skinner may be applicable. This theory describes how rewards shape and maintain behavior.

School violence and vandalism may be partially understood through the social-learning theory of the Canadian-American psychologist Albert Bandura, which describes the conditions under which people learn to imitate models. Information-processing theory is used to understand how people solve problems by analogy and metaphor.

In the early 1960s Bandura and other researchers conducted a classic set of experiments that demonstrated the power of observational learning. In a variant of the original experiment, Bandura and colleagues examined the effect of observed consequences on learning. Bandura concluded that even those children who did not see the adult model receive a reward had learned through observation, but these children (especially those who saw the model being punished) would not display what they had learned until they expected a reward for doing so. The term latent learning describes cases in which an individual learns a new behavior but does not perform this behavior until there is the possibility of obtaining a reward.

Bandura's Theory of Imitation

According to Bandura's influential theory of imitation, also called social learning theory, four factors are necessary for a person to learn through observation and then imitate a behavior: attention, retention, reproduction, and motivation.

First, the learner must pay *attention* to the crucial details of the model's behavior. The second factor is *retention*—the learner must be able to retain all of this information in memory until it is time to use it. Third, the learner must have the physical skills and coordination needed for *reproduction* of the behavior. Finally, the learner must have the *motivation* to imitate the model. That is, learners are more likely to imitate a behavior if they expect it to lead to some type of reward or reinforcement.

Theory of Generalized Imitation

An alternative to Bandura's theory is the theory of generalized imitation. This theory states that people will imitate the behaviors of others if the situation is similar to cases in which their imitation was reinforced in the past. Whereas Bandura's theory emphasizes the imitator's thought processes and motivation, the theory of generalized imitation relies on two basic principles of operant conditioning—reinforcement and generalization.

Factors Affecting Imitation

Many factors determine whether or not a person will imitate a model. As already shown, children are more likely to imitate a model when the model's behavior has been reinforced than when it has been punished. The characteristics of the model also influence the likelihood of imitation. Studies have shown that children are more likely to imitate adults who are pleasant and attentive to them than those who are not.

Children more often imitate adults who have substantial influence over their lives, such as parents and teachers, and those who seem admired and successful, such as celebrities and athletes. Both children and adults are more likely to imitate models who are similar to them in sex, age, and background. For this reason, when behavior therapists use modeling to teach new behaviors or skills, they try to use models who are similar to the learners.

Influence of Television

The television provides many powerful models for children and abundant opportunities for observational learning. Studies have found that by early adolescence, the average American child has watched thousands of dramatized murders and countless other acts of violence on television.

For many years, psychologists have debated the question of whether watching violence on television has detrimental effects on children. A number of experiments, both inside and outside the laboratory, have found evidence that viewing television violence is related to increased aggression in children. Most psychologists now believe, however, that watching violence on television can sometimes lead to increased aggressiveness in children.

Educational programs such as “Sesame Street” give children the opportunity to learn letters of the alphabet, words, numbers, and social skills. Such programs also show people who solve problems and resolve differences through cooperation and discussion rather than through aggression and hostility.

Albert Bandura’s social language theory was a modification of traditional learning theory, and traditional learning theory grew out of the behaviorist approach of John Watson and others, including B. F. Skinner. The basic model of a behaviorist and learning tradition is what is often called S-R associations. Bandura discussed the processes that occurred in the brain that change behavior. This new emphasis on internal processes added a cognitive focus to behaviorism, a focus that extreme behaviorists rejected.

Albert Bandura presented a second theory called “self efficacy theory,” in 1980 which is connected and complementary to his social learning theory. This theory has had a substantial influence, not only researchers in child development, but also on researchers of adult development and aging.

A person’s self efficacy is, in effect, the way a person perceives his own abilities and competence in dealing with problem or challenge. A person can perceive his abilities in a particular domain, high o low. Before Bandura, learning theory did not take account of cognitive processes nor did it account for the great importance of observational learning. Bandura’s theory is still mechanistic and grounded in the behaviorist traditions of learning theory, but he added a cognitive focus and a focus on beliefs, attributions, and expectancies.

The Bandura theory has had a great impact on research on the development of aggression, the development of phobias, the lack of motivation to attempt tasks in older adults, and successful way of dealing with and treating various problem behaviors and disorders. In an applied sense, his theory has been highly successful. His theory focuses on processes, rather than structural or stage like changes.

Bandura’s theory dealt primarily with how we learn through observation and how our self efficacy influences our development. His theory has generated many applications, for example, in treating phobias or dealing with aggression in youth. He did not focus much on the importance of childhood or on the developmental processes that occur at different ages.

Robert White’s motivation theory

In 1959 Robert White wrote a highly influential paper in which he argued that when humans have met their basic needs, they don’t simply shut down like machines or likely many lower animals. Instead, at those times, they are most intrinsically motivated to act on their world.

Susan Harter added to this theory by giving examples of how one’s history of successes and failures over time actually change one’s level of motivation to seek challenges or avoid them.

Martin Seligman developed a highly influential theory of learned "helplessness." A person often learns to be helpless because of continuous experiences with failing at a task or not having the ability to effect a change in her environment. In a sense, a person tends to give up if she thinks she is helpless to have any control.

Based on Seligman's work, Carol Dweck then developed a theory about how we come to believe what our basic skills and abilities are to what sources we attribute our abilities. She focused mainly on people's conceptions of their intelligence. Dweck showed that when a person primarily has experiences in which she has been made to believe that she can change an attribute or ability by her own efforts, she will come to believe that the ability is not a fixed amount or level, that effort determines the skill level she can develop.

Siegler's research comes from mathematics and concerns a child's initial development at counting and adding.

- When children must add two numbers together, they usually begin by counting all the numbers, often using their fingers. It is called the "count all strategy."
- With time, children discover a new strategy that is a much more efficient way of counting. They begin with the highest number, then, count up the other numbers from there. It is called the min strategy.
- Only with further experience will children shift to an even more efficient strategy, in which they memorize the sum for two numbers and quickly pull the sum out of memory. This is a memorization strategy.

Siegler once again found that they showed great variability in which strategy they would use. Although the order of development was from count all to min to memorization, they would usually use all the strategies they had in their repertoire. Only gradually over time did the min strategy first win out over the count all strategy and the memorization strategy win out over the min strategy. Jerome Bruner coined the term scaffolding to refer to this cooperative help from others and the environment.

- It is no longer required for the levels of the building that are already in place. This is the metaphor for all kinds of developmental tasks.
- Adults add scaffolding at the edge of development but remove it when some levels have already been mastered. In addition, scaffolding makes no sense if placed above the level where the developmental work is occurring.
- The process of scaffolding is a dynamic one that constantly shifts levels.

Scaffolding is not effective if the adults provide help well beyond the child's zone of proximal development or below the zone of proximal development, at levels that child has already mastered.

Robert Fivush and other completed research on the construction of narrative memory in children.

- In observation of children being asked to tell about something that happened, the parent and the child usually co-construct the narrative account. The parent provides cues as to what happened and helps the child recall events. These events then become more permanently encoded in the child's memory.
- Within this process, it is impossible to say what the child remembers and what comes from the parent.
- Young children would not remember most sequences of events without initial aid to the parent recalling the event with them.

Bibliography

Mary D. Salter Ainsworth (December 1913 – 1999) was a Canadian developmental psychologist known for her work in early emotional attachment- the Development of Attachment Theory.

Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Albert, Bandura. Bandura and other researchers conducted a classic set of experiments that demonstrated the power of observational learning. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Alfred Binet (1857-1911), French psychologist known for the development of the standard quotient intelligence test. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

William Blatz and the Dionne Quintuplets, Canadian Psychology, May 1997 by Prochner, Larry, Doyon, Pierre. In 1920-1930, it was within this research context that the Dionne Quintuplets were studied over a three-year period by Dr. William Blatz and his team from the Toronto child study center, which was called St. George's School of Child Study (SGSCS). Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

John Bowlby (1907–1990), English psychologist, and author of Child Care and the Growth of Love (1953), in which he argued that a home environment for children is preferable to an institution, and stressed the value of the bond between mother and child. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Dr. Nancy Julia Chodorow, a feminist sociologist and psychoanalyst theorist. Wrote a number of influential books. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Charles Horton Cooley (1864-1929), United States sociologist. Cooley is known for his theories regarding the self, human nature, the "primary groups" in which human nature is developed-

social relations. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Charles Darwin (1809-1882), founder of the evolutionary theory. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Carol S. Dweck (born October 17, 1946) professor at Stanford University and a social psychologist. Professor Dweck has primary research interests in motivation, personality, and development. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Erik Erikson (1902-1994), American psychoanalyst who made major contributions to the field of psychology with his work on child development and on the identity crisis. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Robyn L. Fivush, Role: Senior Fellow, Chair, Department of Psychology, Samuel Candler Dobbs Professor of Psychology, Emory University; Robyn Fivush is known for her work on the social construction of autobiographical memory. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Dr. John H. Flavell (born 1928) American developmental psychologist specializing in children's cognitive development. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Sigmund Freud (1856-1939), Austrian physician, neurologist, and founder of psychoanalysis, who created an entirely new approach to the understanding of human personality. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Karl von Frisch (1886-1982), Austrian zoologist and Nobel laureate, pioneering work on the chemical and visual perception of fish and bees led him to discover how honey bees orient and communicate. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Erich Fromm (1900-1980), American psychoanalyst, best known for his application of psychoanalytic theory to social and cultural problems. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

G. Stanley Hall (1844-1924), American psychologist and educator, Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Susan Harter, Professor Emeritus, Developmental Psychology Department. Dr. Harter's research in the area of socio-emotional development focuses on the self-system, broadly defined. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Karen Horney (1885-1952), German American psychiatrist. Horney founded a neo-Freudian school of psychoanalysis, Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Carl Jung (1875-1961), Swiss psychiatrist, who founded the analytical school of psychology, Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Jerome Kagan (born 1929) is one of the key pioneers of developmental psychology. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Melanie Klein (1882-1960), Austrian psychoanalyst who devised therapeutic techniques for children, Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Lessons 1 thru 24, Theories of Human Development, Teaching Company Video Course by Malcolm W. Watson, Professor of Psychology and chair of the Social Science School Council at Brandeis University.

John Locke, English philosopher, who founded the school of empiricism. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Conrad Lorenz (1903-1989), Austrian zoologist and Nobel Laureate was instrumental in the founding of ethology. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Machine of Thought, contributed by: Henry L. Roediger, Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Mental Illness, contributed by: Alex Cohen and Arthur M. Kleinman, Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Ivan Petrovich Pavlov, Russian well known in reflex behavior in animals, Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Jean Piaget (1896-1980), Swiss psychologist best known for his pioneering work on the development of intelligence in children. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Psychoanalysis, contributed by: Jacob A. Arlow, John L. Herman, Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Otto Rank, a psychologist who worked with Sigmund Freud, the founder of psychoanalysis, before developing his own theories about mental and emotional disorders. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Jean Jacques Rousseau (1712-1778), French philosopher, social and political theorist, musician, botanist, and one of the most eloquent writers of the Age of Enlightenment. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Martin E. P. Seligman (born August 12, 1942, in Albany, New York) is an American psychologist and author of self-help books. His theory of "learned helplessness" is widely respected among scientific psychologists. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Robert Siegler is Teresa Heinz, Professor of Cognitive Psychology at Carnegie Mellon University. His research focused on children's thinking, particularly mathematical and scientific thinking. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

B. F. Skinner (1904-1990), American psychologist. B. F. Skinner became famous for his pioneering research on learning and behavior. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

René Árpád Spitz (1887 – September 11, 1974) was an American psychoanalyst of Hungarian origin. He based his observations and experiments on psychoanalytic findings, developed by Freud. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Harry Stack Sullivan (1892-1949), American psychiatrist, noted for his theory of interpersonal relations, which holds that personality development and mental disorder. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

The Moral Development of Children, by William Damon, Copyright © August 1999 by Scientific American, Inc. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved

Dietrich Tiedemann (1748-1803), German philosopher, Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Dietrich Tiedemann (1748-1803), from Wikipedia, the free encyclopedia, Web Site: http://www.chgd.umich.edu/faculty/wellman.html

Timeline of Human Evolution, from Wikipedia, the free encyclopedia, Source: http://en.wikipedia.org/wiki/Timeline_of_human_evolution

Nikolas Tinbergen (1907-88), Dutch zoologist and Nobel laureate, noted for his studies of animal behavior. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Lev Vygotsky (1896–1934), Soviet psychologist, whose work on language and linguistic development, Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Everett Waters, Ph.D., University of Minnesota, Institute of Child Development (1977) and Dr. Waters are engaged in a wide range of research on attachment relationships from infancy through adulthood. Examined parent-child and marital relationships over period of 10-20 years. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

John B. Watson (1878-1958), American psychologist. Watson is noted as the founder and leading exponent of the school of psychology known as behaviorism, Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.

Henry M. Wellman, Ph.D., Research Professor, CHGD; Harold W. Stevenson Collegiate Professor of Psychology, College of LS&A. Henry Wellman is a developmental psychologist specializing in cognitive development. Microsoft ® Encarta ® 2007. © 1993-2006 Microsoft Corporation. All rights reserved.