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COURSE NAME: HGD043 HUMAN GROWTH AND DEVELOPMENT

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Contents

Introduction - Human growth and development

The possibility for life exists before conception as an ovum from the mother and a sperm from the father. Life, growth and development are created at conception and continues to the date of death of an individual. Growth and development stages are marked by expected milestones being achieved within the parameters of age differentiation, for example, an infant should start crawling by 9 or 10 months of age and walking by 11 or 12 months of age. This development involves mental, and both fine and gross motor coordination, ability, skill and mastery and is referred to as psychomotor development. Growth stages are rapid and very noticeable in infancy and continue in toddler, childhood, juvenile and adolescence until maturity is reached in adulthood. Thereafter, growth is in slower stages of ageing and getting old until death occurs. While not all children develop psychomotor ability at the exact stage of reaching expected milestones, parents should be aware of, and alerted to, delays and seek professional medical help from their pediatrician. According to the National Library of Medicine website, "In the context

of childhood development, growth is defined as an irreversible constant increase in size, and development is defined as growth in psychomotor capacity."

Developmental characteristics and principles

Growth and development is governed by recognized principles that define the expected pattern or model and the process or transformation. Study.com states the following: "These are the cephalocaudal principle, the proximodistal principle, and the orthogenetic principle."

Cephalocaudal principle

Simply stated, the cephalocaudal principle refers to the growth pattern and process from head to toe. Growth and strength begins with the head and upper part of the body, continuing to the rest of the body. The senses of sight and hearing develop and mature before the ability to control movement required for walking. Usually, within the first two months of life, the infant gains strength to control the head and movements of the face such as smiling. Next, the control of the movements of the arms such as lifting oneself up is mastered over the next few months. This is followed by control of the movements of the legs such as crawling, standing and walking which occurs between the ages of 6 to 12 months.

Proximodistal principle

The direction of growth and development continues from the center of the body and spinal cord and proceeds outwards. The body trunk grows and is followed by control of the arms and legs. Strength and control of the hands and feet also develop before the fingers and toes. The use of these body parts is also defined proximodistally. For example, lifting oneself up effectively occurs before the ability to grasp objects with the hands followed by the fine motor coordination and abilities of the fingers.

Developmental dependency on maturation and learning

Maturation is characterized by continuous consecutive biological growth and development that is genetically innate. Children gain new essential abilities and qualities through sequential biological changes. Maturation is predominantly assigned to the changing brain and nervous system. Changes in the brain and nervous system advance, increase and help to mature children's thinking or cognitive abilities as well as physical or motor skills. The progression to gaining new skills or readiness is achieved as children mature to each stage. Stages of maturation and learning is also referred to as milestones – learning to sit, crawl, walk, talk, etc. There are many factors that impact a child's maturation and development and can range from family housing and income, parenting styles, environment, genetics, diet, stimulation, language barriers, etc. For optimal growth and development children need access to a variety of positive factors such as a safe nurturing home free of violence, environments that provide stimulating interactions and

experiences, healthy and adequate nutrition, access to medical care, etc. With the right positive factors children can reach their full potential.

Developmental progression

In the process of development, simple abilities are mastered first, followed by complex abilities. Cognitive and language skills are used by children to analyze problems and find solutions. Children will learn to identify similarities or relationships that are common between things. This classification is crucial in the development of cognitive ability. Recognizing and describing how simple objects, for example, a toy pot and pan, are similar, is a simple or concrete cognitive thought mechanism of learning. If a young child of preschool age, cannot recognize a relationship between objects, the child will describe a property of the objects that is recognizable and identifiable. The property could be as simple as the color: "The pot is blue and the pan is red." The functional relationship, the description, of how the objects are alike is the first thought that comes to mind. Recognizing the functional relationship and being able to give a description of that relationship, are both concrete thoughts. For example, "The pot and pan are round." and "I can cook food in my pot and pan." As maturation progresses, children will develop more complex cognitive skills. Eventually the ability to cognitively classify objects will be achieved, for example, "Pots and pans are cookware."

The continuum of growth and development

Each new skill acquired and mastered is the base or foundation on which additional ability, proficiency and mastery are built. For example, this refers back to the proximodistal principle where an infant will first learn and master lifting and turning the head before being able to turn over or roll over. Then the infant will learn to get up on hands and keens followed by being able to crawl. Mastery of standing leads to the ability to walk, at first by holding on to something and then being able to walk by oneself. As milestones are achieved, the child will eventually be able to climb stairs and alternate feet on the way up and down. We see in maturation and learning that a child must first be able to control movements of the hand and then the fingers.

The process of growth and development - general to specific

On the website Educere Centre it is stated, "While developing to any aspect of personality, the child first pickup or exhibit a general response and learn how to show specific and goal-directed responses afterwards." For example, the ability to grasp with the hand is followed by fine motor skills of the fingers which leads to the ability to hold a pencil and draw or write. The first gross motor movements in the infant child are not controlled but rather general with seemingly no direction and are also reflexive to certain stimulation such as in the feeling of being dropped, the infant will reach out the arms in a rapid motion. General to specific growth takes place in the large muscles first where gross motor skills are acquired and then moves to the smaller muscles where fine motor skills and coordination are controlled.

Rates of growth and development are individual

Every child is unique and therefore, although there are expected milestones to be reached at certain ages and growth patterns are similar, children will differ in their rates of growth and development and the ages at which they reach milestones or stages, will certainly also differ. The expected ages to reach milestones is variable. Therefore, one must not use these age guidelines and associated expected milestones to describe or label children. Each child will achieve success at their own rate, within the age and stage parameters, and therefore, children should not be compared with each other.

However, one must also be aware of the possibility of delayed growth and development which requires a proper diagnosis from a pediatrician or other specialist. A child with a positive diagnosis for delays may have special needs, for example, if the child is not responding to sounds and sound stimuli, the child may be deaf and need cochlear implants and may even need to attend day care or school where staff are specifically trained in caring for, and teaching children who have auditory impairments. The website, Grow by WebMD states that, "Developmental delay is when your child lags behind their peers in one or more areas of emotional, mental, or physical growth." Parents and care givers need to be informed and alert but at the same time be cautious about over-reacting to perceived delays that may actually be false alarms.

Infancy

An infant is a baby aged from birth to one year old. The skills developed during the first year of infancy are very important and are retained for the life of the person. Gross motor skills refer to the abilities that large muscles control. An example of a gross motor skill is the ability to walk, and development of gross motor skills in infancy are sequential. Fine motor skills are controlled by smaller muscles, such as the ability to pick up something using the fingers. Sensory skills relate to the abilities of sight, hearing, tasting, touching and smelling. During the first year, language skills start to develop and begin with the infant making sounds, learning some simple words and responding to speech. The baby's interaction with family, peers and other people develops into functional social skills.

Childhood years

Physical growth after the first year decreases and slows down. Toddlers are aged between 1 and 3 years, and growth and development are marked by more mobility and curiosity and exploration. Preschoolers are aged 3 to 5 years old and motor skills become more precise. Children can dress themselves, throw a ball, do simple drawings, etc. From age 6, children are primary school ready. They are more responsible and have a good sense of right and wrong, more independent, spending time bonding and playing with friends, and more capable as accelerated cognitive changes in mental growth develop.

The juvenile years

The website CHOC states: "As children enter school-age, their abilities and understanding of concepts and the world around them continue to grow." Physical activities are performed independently as coordination, balance, strength and stability increase. The body is developing physically and the child enters puberty and sexual development begins. Psychologically, children may experience stress under the strain of peer pressure. Confidence may wane due to emotional changes and their body image. Academically, they prepare for the middle school years and the associated responsibilities that brings. Setting goals to achieve is established and takes on importance.

The adolescent years

The website MedlinePlus states; "The development of children ages 12 through 18 years old should include expected physical and mental milestones." Many changes occur physically as young people attain body maturity: body hair grows, the sexual organs develop and for girls, the menstrual cycle begins while for boys, they regularly experience nocturnal emissions and their voice deepens. Adolescents can become self-conscious as their developing body causes feelings of awkwardness. Cognitively they can grasp more complex concepts and develop moral reasoning. They can be involved in relationships that satisfy and that they can independently

maintain being able to share intimacy. Emotions can be erratic due to increased hormones, body awareness, attraction to the opposite sex, developing coping skills, etc. Adolescents become more mature in purpose and identity of themselves.

Adulthood

The website Britannica defines adulthood as; "the period in the human lifespan in which full physical and intellectual maturity have been attained." The commencement of adulthood is commonly marked at age 20 when the person is recognized as being mature in age, conduct and legally in terms of the law, being able to vote and hold a driver's license. Becoming mature continues into adulthood as one takes on more responsibilities such as being employed, starting a family, buying a home and motor vehicle, etc. Adulthood continues to middle age, which starts at about 40 years, and old age at about 60 years.

Conclusion - Human growth and development

The miracle of life is inexplicable – how a whole fully functional person can develop from 46 chromosomes – 23 from the father and 23 from the mother, is a miracle. The study of human growth and development attempts to understand all the processes that take place from conception to old age and finally death. Science is unlocking the great marvelous mysteries of human life.

Locomotor and cognitive development during infancy

Introduction

Development in infancy is the first stage and possibly the most important stage in the development of the human being after birth. Numerous milestones, both physical and cognitive, take place during the first year of life. The infant increasingly gains control of movements of the body and cognitive functions, such as sight and hearing, begin the process of maturation. Infants are wholly dependent on others to care for them and provide for their needs. Through nurturing, they learn to trust others.

After birth, some internal systems are already developed and functioning allowing babies to suck, swallow, breathe, urinate and defecate. In the first weeks of life, many movements are reflexes and are automatic and involuntary such as closing their eyes to light which is too bright. Some reflexes last for months, while other reflexes disappear within a matter of weeks. Rooting is the response to stimulus, either pressure or touching or stroking on the cheek, prompting the infant to turn the head in the direction of the stimulus with the mouth open, ready to feed. Sucking is also a reflex and is required for survival. It involves compression of the breast or teat of a feeding bottle between the infant's tongue and palate, facilitating expression of the milk, and the milking action of the tongue. Initially some infants may struggle with coordinating the movements of feeding, namely: sucking, breathing and swallowing, but with practice, they are able to feed properly. Another reflex is the Moro reflex, usually peaking in the first four weeks

and then disappearing after about eight weeks. It is a startle reflex where the head falls back or moves suddenly, arms and legs extend, and arms are swiftly brought together in response to being startled. Grasping is also a reflex and is observed when there is stimulation on the infant's palm. The infant will grip the object. Newborns are also able to step when held so that their feet touch a surface. This reflex is known as stepping and disappears after about two months.

Infantile locomotor development – birth to one year old

The infantile locomotor development advances in a cephalocaudal direction, i.e. the gross motor activities of the head and neck, also known as the upper body extremities, develop before the lower extremities of the body such as the legs. After birth, an infant, if laid on its stomach cannot hold up its head because the muscles in the neck are too weak and cannot provide support, but from about four to six weeks on, they start to lift their head and gain control.

Proximodistal development also takes place with the infant gaining control of the trunk, shoulders and arms before gaining control of the outward extremities of the hands and fingers. Most babies can lift their chests up by resting on their arms, which provides support and stability, from about two or three months onwards. With daily practice, muscles strengthen and movements become more controlled and less erratic. By three months further control of the arms develop and babies start to reach with both hands when an object is held towards them, but miss grasping the object as the hand-eye coordination is not sufficiently developed.

Most babies start rolling over, from lying on their back, to their stomach, by month four or five. This is further proximodistal development. When babies have good control of their head and neck, they will start trying to sit. At around 4 to 5 months of age, they will sit with support for short periods. Support can be anything from leaning on a person to being propped up by cushions. Not long after, babies will learn to lean on their hands while sitting propped up, giving them balance. When babies are between 6 and 8 months old, they have sufficient muscle strength, balance and gross motor control required for sitting, and they can sit on their own. By nine months, they can push themselves up into the sitting position.

Babies will start pulling themselves up, trying to stand, at around 7 to 12 months. The website Pathways.org states that: "The object they pull on and use for support can be anything at their height that helps them feel steady, like a piece of furniture or someone's hand." With enough practice, and as leg muscles gain strength, and as balance improves, babies will stop holding onto objects and stand on their own. This can happen anytime from about ten months of age. During this time babies will also learn to crawl or creep. This gives them independent mobility to discover and explore their environment.

When babies can stand by holding onto furniture or something similar, they will take side-steps using the object for support. Babies will then learn to stand independently as balance continues to improve. Not long after this is accomplished, they will start walking forward either by holding

onto something or holding someone's hand. Eventually, enough gross motor coordination will be achieved and they can walk on their own.

Infantile cognitive development – birth to one year old

Eye and ear sight are developed during the fetal stage but at birth babies can only see in shades of gray and black and white and cannot see very far. The website, Nationwide Children's gives a reason for this stating: "Nerve cells in the brain and retina of the eye are not fully developed." Baby will have clear vision at around four months of age and color vision by six months. From when in the womb, babies can hear but full hearing ability is not fully developed until about six months.

Babies discover their own voice when they are about six week old and they will spend time cooing and gurgling. They communicate their needs by crying and they enjoy eye contact and can smile. They also start discovering their hands and feet and can hold objects such as a toy rattle. Their eyesight is improving and at this age, babies focus on moving objects by following them and will also be interested in sounds.

Over the next few months cognitive abilities will improve in tandem with the development of physical abilities. Babies will start imitating simple speech that they hear such as the baby words "mama" and "dada". Eyesight and hearing should be fully functional by six months. They can

play with toys and grasp objects and put simple food in their mouths such as eating a cookie made for infants. Their personality is also developing and traits are noticeable.

Conclusion - locomotor and cognitive development during infancy

By 12 months of age, babies are a little person and are not so needy and dependent. The foundation of their cognitive development has been laid and their locomotor development has been exponential. Next, babies will enter the toddler stage where further cognitive and locomotor development will occur.

Figure 2.1. Gross motor development as a sequence of milestones.

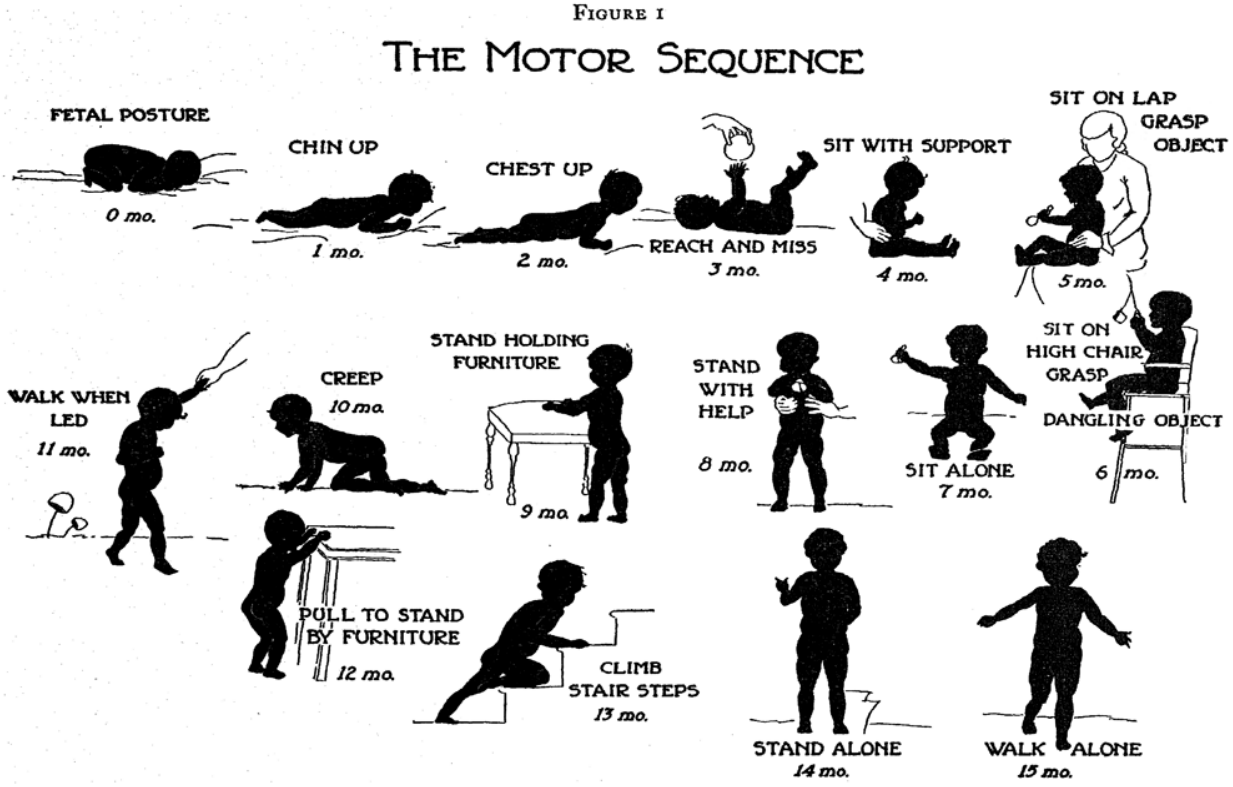

Image from: "van Buuren S and Eekhout I. Child development with the D-score: turning milestones into measurement [version 1]. Gates Open Res 2021, 5:81 (doi: 10.12688/gatesopenres.13222.1)"

Early childhood development theories

Ecological systems theory – Urie Bronfenbrenner (1979)

Russian-born American, Urie Bronfenbrenner was a psychologist. In 1977, he developed the ecological systems theory. The website, Simply Psychology states that Bronfenbrenner's theory: "views child development as a complex system of relationships affected by multiple levels of the surrounding environment, from immediate settings of family and school to broad cultural values, laws, and customs." He identified five socially organized and interrelated subsystems, namely: microsystem, mesosystem, exosystem, macrosystem, and chronosystem.

The microsystem

This is the first level in which things have direct and immediate contact with the child in their environment. Examples include, parents and others in the household such as siblings, childminders, teachers, and peers at school.

In a microsystem, relationships go both ways, i.e. bi-directional. This means that in the environment, the child is influenced by others, and the child is also influential on the other people in the environment, with the ability to change their actions, beliefs and judgements. But not only this, the way in which the child reacts can influence and affect the way in which others treat the child.

Within microsystens, the interactions between the parties are of a personal nature and therefore essential for fostering, nurturing and giving support to the child's continuous development.

A strong stable nurturing relationship between parents and a child will have a direct decisive effect on the child which is positive for development. On the other hand, parents who take the approach of being emotionally unavailable, uninvolved and unloving, will negatively affect the child.

The mesosystem

Interactions in the child's microsystem are interconnected with interactions in the mesosystem, for example, if the parents of the child interact with teachers. The interaction could be positive or negative and both have the propensity to influence the child's development. In Bronfenbrenner's theory of the ecological systems, if the parent's maintain a good relationship with the child's teachers, the child would in all likelihood experience positive effects on his or her development.

On the other hand, if the parents and teachers do not get on well together, the child could experience negative effects on his or her development.

The exosystem

The exosystem includes other structures, both formal and informal in which the child is excluded, however, the exosystem indirectly has influence and affects the microsystem of the child.

Extended family members, the parent's workplaces and their friends, the school board, social services and mass media are all examples of components of the exosystem. The child is excluded from involvement in these environments and the environments are independent of the child's experience however, the child is affected by them in any event. An example would be if one of the parents lost their job. The stress and instant lack of regular income for the parent results in a negative developmental effect on the child.

The macrosystem

In the macrosystem, the focus is on the effects of cultural dynamics, such as attitudes and ideologies, on the development of a child. Factors in the macrosystem include economic status,

whether wealthy or poor, ethnic origin, cultural idologies, etc. Immersion in culture can greatly influence one's outlook and belief system about events that happen in life.

The society and culture that is already in existence and established, is the macrosystem, and the child is developing in this society and culture. For example, a child growing up in Africa where poverty is rife, would most certainly have a completely different development experience than a child growing up in Europe.

The chronosystem

This final level is made up of the changes within the environment that take place over the life span that have a developmental influence, for example, events in history and transitions in life such as the start of school, which is a normal life transition. Non-normal transitions of life include such things as the separation or divorce of parents or moving house.

Psychologists, sociologists and teachers have applied Bronfenbrenner's model in the study and understanding of child development. The theory is appealing because all the systems that children and their family are a part of and play a role in are included.

Diagram illustrating Bronfenbrenner's model

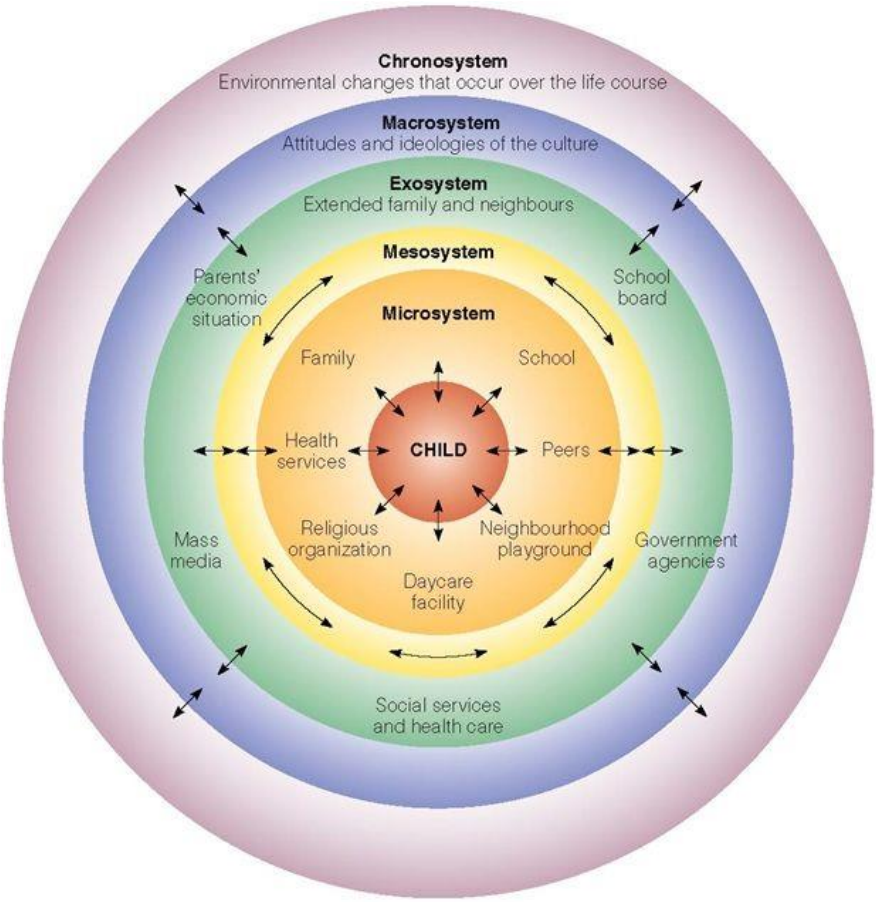

Diagram from SimplyPsychology website

Human ethology and non-verbal communication

Human ethology

The website Merriam Webster defines human ethology as: "the scientific study of human behavior under natural conditions especially in the context of its origin and evolution."

Ethologists are mainly interested in studying behavior in natural settings where the conditions are natural, not forced and environmentally orientated, revealing the inborn or innate patterns of behavior. Diverse medical disciplines gain insight into human behavior through human ethology such as; central nervous system physiology, anthropology and to some degree, even pediatrics.

The heritage of classical ethology

The term "behavioral sciences" incorporates a broad spectrum of sciences and their associated sub-disciplines that study the how humans behave. Sciences concerned with this study include psychology, psychiatry, psychoanalysis, behaviorism, behavioral ecology, etc. Included in the disciplines of behavioral sciences, is human ethology which adheres to classical zooethology which stems from zoology.

Austrian, Konrad Zacharias Lorenz was a zoologist, ethologist and ornithologist and in his book, published in 1935, he discussed imprinting, which refers to the attachment or bond some animals form between the newborn and the one providing care. Other scientists associated with ethology are Karl von Frisch and Nikolaas Tinbergen. In 1973, according to the website, The Nobel Prize, these three scientists were jointly awarded the prize in Physiology or Medicine: "for their discoveries concerning organization and elicitation of individual and social behaviour patterns".

Austrian Irenäus Eibl-Eibesfeldt, was an ethnologist specializing in human ethology. He authored many studies and books on the subject and is widely recognized as the founder of human ethology. He also did comparative research into human behavior across cultures.

Instinctive movement or movement coordination that is inherited is known as a fixed action pattern and its complexity is greater than that of reflexes. The members of a species display innate behavior that is stereotypical and apparently fixed, with an environmental cue or stimulus triggering the action or behavior. When the fixed action pattern is triggered it will continue until complete even if the stimulus is no longer present.

Eibl-Eibesfeldt, Tinbergen and Lorenz all did research into the innate fixed action pattern. Konrad Lorenz and Nikolaas Tinbergen were the first scientist to introduce the concept of fixed action patterns. According to Lorenz, behavior is made up of innate reflexes and fixed action patterns which are species specific and are the basic units of behavior.

Later on, Lorenz concentrated on the environmental aspect of specific circuits responsible for controlling reflexes and fixed action patterns. The movement of the organism is automatic, involuntary and predictable aiding in avoiding danger while navigating and exploring the environment, interacting with other organisms and identifying resources, also referred to as appetites and aversions. The process of learning can be impacted by these units.

Precise observational techniques, and describing and classifying innate behavior, together with approaching behavioral study ethologically, has added value to human ethology, for example, the study of attachment behavior.

Human Nonverbal Communication (HNC)

The website Wikipedia, defines nonverbal communication as: "the transmission of messages or signals through a nonverbal platform such as eye contact, facial expressions, gestures, posture, and body language." Humans are not consciously mindful or aware of their nonverbal communication and many signals are acutely subtle. Research in this field has detected nine distinct forms of nonverbal communication.

Facial expressions

Facial expressions account for a large percentage of human nonverbal communication. A happy smile can convey unspoken information such as being open and approachable while an angry frown can be a warning to stay clear. Often, a person's facial expression is what we see first before we even hear a single utterance from them. The expressions of being happy, sad, angry or fearful, are universally similar, recognizable even though there are cultural differences.

Gestures

Gestures are usually movements of the arms, hands and head, but can include other parts of the body, which are made to impart communication with or without speaking. Typical gestures are waving, pointing, showing an "okay" sign, clasping hands, tapping or drumming fingers, placing hands on hips, giving a "thumbs up" sign, etc. There are many gesture that are culture specific and although the same gesture might be used in different cultures, its meaning will be understood in the context of the culture. Some gestures in one culture, are offensive or insulting in another culture.

Paralinguistics

Paralinguistics is communication that is vocal but is not spoken language. It includes such factors as the tone of voice, the volume and pitch used, the rate of speech, fluency and inflection. Tone, for example, can change the meaning of a spoken sentence. The same words said in a meek tone convey a different meaning than when said in a powerful tone.

Body language and posture

While it is not an exact science, posture and body movements can give clues into communicating feelings and attitudes of a person. It can be assumed that crossed arms is a defensive posture indicating that the person does not want to communicate. In his book, Body Language, Julius Fast states: "Crossed legs or parallel legs can be a clue to what the person is feeling, to the emotional state *at the moment,* but they may also mean nothing at all." Recent research suggests that body language is not definitive and cannot be interpreted as an exact science.

Proxemics

Many people have a need for personal space, the immediate physical space encompassing someone, known as proxemics. Encroachment in any form into someone's personal space leaves the person feeling discomfort and even threatened.

We have a perception that some space surrounding us belongs to us. The amount of space that we consider as "ours", is influenced and determined by many factors such as, personality, cultural and social norms and expectations, familiarity with other people and the factors of the situation.

Eye gaze

The eyes are responsible for many nonverbal communication cues such as, squinting, winking, blinking, staring and looking. For example, when one is angry, the eyelids contract and become smaller or one may stretch the eyelids to make the eyes bigger, depending on the level of rage.

Nonverbal communication from the gaze of the eyes can suggest interest, appeal, aggression, peacefulness, etc. Some people determine that normal eye contact that is constant and steady indicates truthfulness and the person is deemed trustworthy whereas, the inability to maintain good eye contact, and where the eyes are shifty, indicates untruthfulness and deception.

Haptics

Haptics, communication through the medium of touch, is used to convey care and affection, familiarity and closeness, intimacy, sensitivity, compassion, sympathy, etc. The website verywellmind states: "In her book *Interpersonal Communication: Everyday Encounters*, author Julia Wood writes that touch is also often used to communicate both status and power." This means that persons with high status, whether in the workplace or within society, are more likely to breach the personal space of other people's space more often and more intensely than persons with low status.

Differences in gender also has a role in how touch is used in nonverbal communication. Women often touch to show nurturing, care, kindness, concern, and men tend to touch others to stress control, power or strength.

Touch in infancy and early childhood is essential in ensuring normal development in behavior and social acclimation and interaction. Feral children are often raised in environments void or deprived of touch, nurturing, exposure to language, proper care and adequate nutrition, are permanently set back developmentally, behaviorally and socially.

Appearance

Our appearance, what we wear, what hairstyle we have, whether we are clean and tidy or dirty and unkempt, amongst other factors, also communicate nonverbal cues resulting in being judged or people making their own interpretation of one's social, economic and family background, etc.

When other people see us or meet us for the first time, they see our appearance first, and what they see, makes a lasting impression on them. First impressions are especially important when seeking employment – one must wear formal attire and be appropriately clothed for interviews.

Culture also impacts how one views appearance. In the West, being slender is prized and valued a great deal, while in Africa, for example, having a full-figure can denote elevated social status and wealth and good health.

Artifacts

People often have a particular image and they will devote a lot of time and money creating, developing and growing their image. Creating an online avatar can be a means and platform of communication about oneself. People surround themselves with images and objects that are of importance to them transmitting considerable amounts of information about their likes and dislikes, their activities, their work, their family life, among other things.

In conclusion, we must be cognizant of our nonverbal communication cues because they have a role in conveying information and meaning to other people. In the same way, we in turn interpret and make judgements of other people's actions. When we consider nonverbal communication, we should not isolate it but consider it in context of what is being said, together with how it is being expressed, the appearance of the speaker and the tone of voice used in the communication.

Social-emotional development

In the Research and Policy report, Helping Young Children Succeed, the following definition is given: "In their first years of life, children rapidly develop the social and emotional capacities that prepare them to be self-confident, trusting, empathic, intellectually inquisitive, competent in using language to communicate, and capable of relating well to others."

Social-emotional development of the child encompasses experiences the child has, the child's expression of self and emotions, the ability to control and manage emotions, especially strong emotions, in the manner in which they are expressed in a helpful constructive way and establish and build relationships that are constructive and gratifying, to develop and foster empathy for fellow humans and accurately identify other people's emotional situations and states, and to control and self-regulate one's conduct. Understanding one's own emotions and feelings are at the core of emotional development.

In infancy, emotions are not understood and are experienced, expressed and perceived without comprehension. Children develop skills that are relatable to people in their environment such as family, their coequals, educators and the community at large. The emotional skills development process involves identifying, labelling, controlling and communicating and expressing their emotions. Young children learn competencies in interacting in social situations that become progressively more complex. They learn to engage in relationships and group work and activities. The support gained socially is essential in the development and functioning of healthy humans.

From conception to about three years of age, development advances speedily and it is during this stage that dramatic brain growth takes place, facilitating abilities of thinking, speaking, learning and reasoning. Infants and toddlers require an environment in which there is constant positive interpersonal contact with recognizable nurturing grown-ups for social-emotional development to be healthy. It is through nurturing that the infants' emotional regulation and control are supported by adults, laying the foundation of emotional experiences that extend for life. The article "Children's Emotional Development Is Built into the Architecture of Their Brains" states: "as young children develop, their early emotional experiences literally become embedded in the architecture of their brains".

In the infant child, behavior and the developing architecture of the brain are reinforced between associating emotions, positive in nature, with responsive nurturing care, making emotion and cognition thoroughly interdependent processes, working together. Therefore, emotion and cognition development have a key role in processes requiring attention, decision taking, and learning.

Toddlers and preschoolers have a far more complex emotional state. They rely on their developing abilities and capacities to decipher what they are experiencing and interpret the actions and thoughts of other people, including the responses of other people to them. Their cognitive understanding and abilities continue to develop on the foundations that were laid in infancy, reaching more maturation and better understand a spectrum of feelings and emotions.

By preschool age, children can manage their feelings more effectively. The ability to do so, is a very difficult task for young children.

The young child can experience a range of notably profound and acute feelings such as anxiety, grief, sadness and anger, while on the other hand, they experience the highs of feeling glee, delight, enjoyment and happiness. At this age, children are known for their care-free happy approach to life and they often exude a happy disposition.

Impaired thinking can occur in situations lacking good management and regulation of feelings which are essential for clear thinking. Emotional and cognitive development are interconnected and rely on many factors involving complex neurological circuits in numerous parts of the brain, for example, the limbic cortex, prefrontal cortex, amygdala, brainstem, basal forebrain and hypothalamus. These interactive neurological circuits are related to "executive functions" of the brain which include the ability to make good judgement and decisions as well as being able to plan and solve problems.

Emotions that are regulated well aid executive brain functions but ill regulated emotions result in poor ability to pay attention, make good decisions and have meaningful relationships. This undeniable fact should make all of us aware of the great impact we all have on the young learning mind.

Generations and age cohorts

Cambridge Dictionary defines a generation as: "all the people of about the same age within a society or within a particular family". Typically, generations are replenished every 25 – 30 years with the birth of new members of a family. As new generations are introduced into their space of time, some aspects of the culture are lost and some are reassessed, especially because of the modern times in which we live, and at the same time, some new components are added. Culture becomes somewhat fluid with the passing of time and with the introduction of new generations.

However, in the past, for many centuries, some cultures remained unchanged with the views, mindset and attitudes of the elders having played a dominant role. To a great extent, cultural imprinting is imparted by the parents to the children creating a predisposition to culture-specific values, beliefs, customs, traditions, behaviors, etc. Culture is one of the greatest impacting factors during development because it spans many years, from birth to at least 18 years of age or while the child is still in the parents' home and part of the culture of that society.

The website Verywell Mind states that: "The goal of cross-cultural psychologists is to look at both universal behaviors and unique behaviors to identify the ways in which culture influences behavior, family life, education, social experiences, and other areas." This method of research is commonly applied today as researchers study how humans develop from a global viewpoint.

Age cohorts

We find the following definition for age cohorts on the website Open Education Sociology Dictionary: "A group of people born around the same time period from a particular population that typically shares certain events and experiences over their life course." The events are the experiences individuals have as they get older within the framework of a society.

Age cohorts are studied and researched according to their demographic makeup which includes factors such as the size and density of the population, how the population is distributed, growth trends of the population and structure of the population.

The Traditionalist Generation: 1922-1945

Traditionalists, also known as Veterans or the Silent Generation, are the men and women who were born between 1922, up to and including 1945. In the United States of America, this group of people survived the 1930 Great Depression which followed the 1929 crash of the stock market. They also lived through the Second World War that lasted from 1939 – 1945.

Their general traits include having strong values, being hard-working and patriotic, respecting authority and the rule of order, they are prudent with finances and self-sacrifice, and they are task orientated. Many were deprived of tertiary education due to the financial crisis of the Great Depression years, instilling in them the importance of sending their own children to college or university.

Baby Boomer Generation: 1946-1964

Baby Boomers are the people born after The Second World War in the years from 1946 to 1964, making up the largest cohort of generations in the United States of America. General characteristics of the Baby Boomer Generation is that they value relationships and enjoy time spent with friends and family. Parenthood was often delayed as they are goal orientated and work hard to achieve the goals they set for themselves and make a difference. Women of this cohort were concerned with graduating college with a degree. Having had to sacrifice a lot, they are loyal to both their employers and fellow colleagues. Confidence in self and their abilities are hallmarks of this generation and they are cultural influences. Historically, they have been part of the greatest strides in technological advancement. Baby Boomers are resourceful and can repair many things themselves.

Generation X: 1965-1980

The Gen Xers, as they are also known, are a generation smaller in comparison to the Baby Boomers. "x" is a variable in mathematical equations and denotes that this generational cohort rejected being defined.

Traits of this generation include being independent, flexible, critical thinkers, and self-reliant. They learned to be independent from childhood as in many instances, both parents worked to bring in an income. Gen Xers would often have to find their own way home after school and spend time alone until their parents returned from work entrenching a sense of independence. They are flexible and constantly anticipate change having lived through historical developments, tremendous advances in technology and changes in society that have often been dramatic and drastic. They are critical thinkers having had the opportunity to study at college or university and they are self-reliant, depending on themselves to shape the outcome of their situations and be productive, concerned with making an impact for good.

Generation Y: from 1980 onwards

Generation Y follows on from Generation X and people in this cohort are also known as Millennials, and includes teenagers and twenty and thirty year olds.

The website Live Science states that: "On the negative side, they've been described as lazy, narcissistic and prone to jump from job to job." They have had to constantly adapt to an ever fast

changing world in terms of technological advancement. They are engrossed in technology, the gaming world and the internet, spending many hours a day pursuing such activities. They tend to get bored quickly if not involved in something that requires screen-time.

Their values are materialistically orientated, being concerned with their image, making money and seeking fame. They tend to distance themselves from politics, community, and affiliations. They are considered to being far more open-minded than previous cohorts and support the rights of minority groups, advocating for gay and equal rights. They have been described as exuding confidence with the ability to express themselves, liberal and open to new ideas and lifestyles.

In conclusion, the traits of each cohort is in general and is not person specific but rather observed as a common phenomenon to the different generations.

Limitations of the experimental design in developmental psychology

Research can be conducted in a number of different ways. Each method employed weighs in with its own advantages and disadvantages. Scientists will choose a research method by deciding on what the purpose or aim of the study is and what phenomenon or aspect is to be studied.

A standardized framework is applied in the design of research. Within the framework, a hypothesis is tested to determine if the hypothesis was correct, incorrect or inconclusive. In some instances, the hypothesis is not true, however, valuable insights and understanding are gained and this may lead to further research in another direction.

The most common ways in which research is conducted are; cross-sectional research, longitudinal research, correlational research and experimentation.

Cross-sectional research

In cross-sectional research, people with distinct characteristics from various groups are studied. For example, research is conducted to compare corresponding data between young adults in a group and older adults in a group.

Advantages of cross-sectional research is that the data required is obtained simultaneously with the research and it is completed within a short period of time. A disadvantage is that the aim of the research is to identify a relationship between a cause and the resulting effect, which is not always possible to establish. Many factors may contribute to the resulting effect.

In this research type, probabilities are suggested for an absolute risk (the possibility of an event taking place over time) and the relative risk (the possibility of an event occurring in one group in comparison to another group).

Longitudinal research

With longitudinal research, a group of individuals are studied over a lengthy time period, for example, the study spans many decades or the study can be open-ended having no set end date. The website Verywell Mind states: "One such example is the Terman Study of the Gifted, which began in the 1920s and followed 1528 children for over 80 years."

Data is collected from the start of the study and is collected consistently for the duration of the study, affording the researchers opportunity to observe changes over a long period of time. However, longitudinal research can be costly due to the length of its duration and is therefore undertaken with a smaller group of people or the observation criteria is considerably lessened. Other disadvantages include the influence of external factors on the study such as the political and economic climate, and regional stability. It could also happen that some individuals in the group could abandon the study at any time which will shrink the sample size and resulting conclusions.

Correlational Research

In this non-experimental research type, two variables are studied to determine if there is any association or relationship between them that can be measured. Examples of variables are age, gender, family history, ethnic origin, etc. Researchers collect and assess data and produce a conclusion that is based on statistics without introducing the variables themselves. For example, researchers may look at statistics to determine if outstanding academic achievement in school secures higher-paying employment later on. The researchers gather and assess the data but they do not shape, manipulate or change the variables in the study.

Correlational studies are appropriate and advantageous if the variables are impossible, impractical or unethical to manipulate. For example, living in a noisy city results in people being fatigued and less productive at work, it would not be reasonable or practical to insert such a variable by artificial means into the study.

Two variables may have a relationship but changes in a variable will not necessarily influence or affect another variable, making this research type limited. The association between variables are identified but there may not be any cause for the observed effect.

Experimentation

Experimentation research differs from correlation research in that it involves manipulating and measuring variables. Because this research model is scientifically the most conclusive, it is commonly employed in chemistry, medicine, biology, psychology and sociology.

Cause and effect are determined through manipulation in a small number or sample of the subjects in the experimental research. The sampling consists of two groups: the experimental group and the control group. The variable, for example, a drug, medication or treatment, is introduced in the experimental group and no variable is introduced in the control group.

The sample group can be decided on randomly to determine if the achieved effects of the variable are consistent. The sample group could also represent a distinct population.

A deficit and weakness in experimentation research is when researchers want to publish or attain an explicit result, confirmation bias occurs, which can misrepresent the analysis which leads to the conclusion being a false-positive. A strategy to avoid this, is for both the researchers and the participants to have no knowledge of which group makes up the control. The gold standard applied in research is the randomized controlled trial (RCT), which is double-blinded (researchers and participants not knowing which the control group is).

Theories of language development and nativism

The development and acquisition of language is a gradual lengthy process which starts within the first year of life. Children learn to grasp and comprehend what is spoken and in turn they learn to communicate.

Language ability emerges after a time in which significant brain development occurred and is a marvelous majestic ability within the human species. At some point within the first year of life, or shortly thereafter, a baby's cooing and babbling becomes words that have meaning and the baby soon becomes a chatterbox understanding sounds and learning new words. Today, there are possibly over 7,000 spoken languages in the world with about 2,800 languages facing extinction as some cultures experience low birth rates or the migration of the youth to cities to pursue careers.

The complex workings of the brain are not yet fully understood and therefore the methodical system of the development of language is still being researched and discovered. Areas of the brain involved in language acquisition include Wernicke's area, the basal ganglia, the insular cortex, the angular gyrus, and the cerebellum. Five theories, or approaches are widely studied in this regard and provide some insight into this incredible phenomenon of language production and acquisition.

Daniel Leonard Everett's theory: grammar sketches of languages

American born linguist and author, Daniel Leonard Everett, is well known for his study of the Brazilian people in the Amazon Basin, the Pirahã, and their language. He takes the position that human beings have been making sounds that are meaningful, for a very long lime. He proposes that the first hunter-gatherers travelled in groups from one island to the next and they needed language to communicate their ideas when out searching for food.

The website Edgy, quotes Everett as saying: “You need communication with symbols, not just grunts." Human language was recognizable as vastly more superior and complex than that of other species who do not use symbols or have a written language.

Studies of early settlers on the island of Flores in Indonesia, indicate that early hunter-gatherers navigated the ocean currents in groups, knowing how to paddle and steer their rafts, and when to cease their endeavors.

The people of these early settlements, were successful due to the fact that they could communicate with each other and had an array of linguistic capabilities. Language was derived from a social need and was shaped over a long period by many people.

Chomsky's nativist linguistic theory

The work done by Everett, suggests that language was developed as a tool used in social situations for knowledge sharing and problem solving. However, American born linguist, Avram Noam Chomsky, is of the opinion that language is innate. In addition to being a linguist, Chomsky is also a cognitive scientist and one of the founders in the field. He is often referred to as the "father" of cognitive science.

The website Wikipedia quotes Chomsky as saying: “The whole system and structure of a language or of languages in general, usually taken as consisting of syntax and morphology (including inflections) and sometimes also phonology and semantics.” The concept of universal grammar was conceived by Chomsky and theorizes that language has a component of genetics.

The nativist linguistic theory considers language ability as being innate and every person born, has this ability. The infant brain is well equipped with systems and structures and has all the prerequisites to learn language. Chomsky called this the Language Acquisition Device (or LAD) which is a hypothetical concept, with neuroscientists recognizing many parts of the brain involved in language acquisition. He postulates that there could have been one foremost language in which all languages have their roots and language materialized in one person first.

Burrhus Frederic Skinner's behaviorist theory

Born in America, B.F. Skinner was a psychologist, social philosopher, behaviorist, author and inventor. He is known for his behaviorist language acquisition theory. With this theory, there is no recognition of grammar being universal and being an innate faculty.

The behaviorist theory suggests that learning a language is achieved through observing, imitating, repeating, making errors, being rewarded and punished, much like a new skill is learned. Skinner called this process "operant conditioning". Development of language is a behavior that is learned. As babies learn to speak, they are imitating the behavior they see of their parents and other people they have contact with.

Language develops in response to a stimulating environment. Rewards such as hugging, showering praise and being excited when babies say their first word is affirmation to keep on learning. When learning in school, children are rewarded for good progress and punished for poor progress in language learning.

Chomsky states that the behaviorist theory does not address how syntactic ability is acquired.

Lev Vygotsky's social interactionist theory

Lev Vygotsky was born in the former Soviet Union, and was a psychologist. He was known for his research into the psychological development in children and his social interactionist theory. The opinion of this theory is that language has its origin in social settings and is thus similar to Everett's theory.

From birth, children constantly engage in interactions that are social in nature providing opportunities for higher cognitive functions to develop such as language and thoughts. Vygotsky's model of social development, interactions in a socio-cultural setting come before cognition and the development of language.

Jean Piaget's constructivist theory

Jean Piaget was a Swiss psychologist and his constructivist theory postulates that language development is more than genetic predisposition or imitation. His constructivist theory presents argument that language skills are developed, and general knowledge is based on individual experience.

Piaget's theory is concerned with understanding the construct of intelligence itself. He identified four stages of cognitive development, namely:

- Sensorimotor stage: from birth to 2 years
- Preoperational stage: from 2 to 7 years
- Concrete operational stage: from 7 to 11 years
- Formal operational stage: from 12 years and up

Conclusion - theories of language development and nativism

There are many other scientists who have theorized about, and expanded on studies of language development. Because humans have languages, we are able to communicate ideas and we have developed our world. Without language, it is thought that civilization may never have come about, let alone the development of mechanization of machinery and the invention of technology. Many disciplines such as linguistics, genetics, neurology, anthropology, computer scientists, archaeology, etc. contribute to language development and the study thereof.

Formal democracy and effective democracy

The website, Council of Europe, provides the following definition: "democracy can be thought of as "power of the people": a way of governing which depends on the will of the people". This means that people in a country are empowered to deliberate and decide what legislation should be passed as laws.

Many varying models of democracy can be found in governments across the globe so it would be prudent to define what it is not. A democratic government is not an autocracy or dictatorship, which is ruled by one person, and it is not oligarchy, which is ruled by a small representation of society. In the strictest sense, a democracy is not even a majority rule because that implies that the interests of minorities are disregarded. Theoretically, a democracy is a government, ruling on behalf of all people in accordance with the will of the people.

The first democratic government can be traced back to about 500 BC in Ancient Greece. In modern democracies, a constitution is adopted which gives freedom rights such as free speech, information and association, freedom of private and public expression of self, freedom of voting in elections and referenda, property and minority rights, freedom of professional and artistic activities, religious freedom, the right to life, equality, citizenship and liberty. These rights are the pillars of democracy and without them, democracy does not exist.

However, these legal assurances do not make the right of freedom effective. In his article regarding this problem, Christian Welzel states: "...beneath a surface of legal guarantees, there can be informal social mechanisms that hinder people in practicing their rights effectively."

Mechanisms that weaken how effective lawful rights are, include corruption of the elites and closure of the elites. Corruption refers to the violation of the rule of law and closure refers to the

undermining of the rights of equality. Democracy is dependent on the rights given to people in their constitution but is rendered ineffective by the characteristics of the society's elites. In many democratic countries, women, underprivileged people and minority religious groups cannot enforce their democratic rights.

India, has a population of 1.57 billon people. It is a fully democratic country but democracy has not been effective in India for many reasons. One of the most challenging factors is that sustained economic development has not been achieved. Extreme poverty has not been eliminated with more than 800 million people considered to be poor and living on about $2 a day. The website SOS Children's Villages states: "Poverty in India impacts children, families and individuals in a variety of different ways through: high infant mortality, malnutrition, child labor, lack of education, child marriage and HIV/AIDS." All of these factors negatively impact democracy, the constitution and people's rights.

With a deficiency in educating the youth, children grow up to a bleak job market where low-wage and low-skills jobs are their only option of employment.

Hindus are in the majority leaving Muslims and Dalits in minority groups. There are other religious groups in India, such as Christians, but their numbers are very low. Hindus are widely represented in government and many Hindus are educated elites holding down well-paying jobs.

In 2019 the Citizenship Amendment Act was passed which made it easier for other religious groups to apply for Indian citizenship but Muslims were omitted from the Act.

Currently, the Hindu majority BJP party, heads up the government, and political conversations have become very polarized. Trust in institutions and the rule of law have been eroded. The legal system is corrupt and dysfunctional and many people are imprisoned for "crimes" which are actually their constitutional right, such as participating in a peaceful protest. The website Chatham House states: "Amnesty International reports numerous uses of excessive force by India's police and security forces."

After decades of allowing selective abortions, India has demographic challenges with a notable imbalance between male and female numbers. The population who are old enough to enter the job market is rising but not enough jobs are being generated and unemployment is rife leading to further hardship for the impoverished.

The democratic model is very good but when it fails in reality, as in the case of India, the results are catastrophic for the people it was supposed to protect and give rights to.

According to the website Statista: "Norway was deemed the most democratic country in 2021." Norway scored 9.75 out of 10. Democracy is also very strong in New Zealand, Finland, Sweden, Iceland, Denmark and Ireland to name a few.

Intelligence and creativity and models of intellect

The website PressBooks defines intelligene: "Intelligence is used in many context to refer to capacity for logic, understanding, self-awareness, learning, emotional knowledge, reasoning, planning, creativity, and problem solving."

The intelligence of humans has been widely studied. Other intelligences have also been documented in animals, plants, machines utilizing artificial intelligence (AI), and in the application of neural network modeling (a simple model of how information is processed by the human brain).

Charles Spearman, a British psychologist, concluded that intelligence is a single general factor which he named *g*. This factor is measurable and comparable among people. He concentrated on common traits of intellectual competencies and attached little importance to traits that were unique.

Other psychologists are of the opinion that intelligence is not a single factor, but rather an assortment of specific abilities.

British born Raymond Bernard Cattell, theorized that intelligence has two components, which he termed: crystallized and fluid intelligence. Crystallized intelligence is knowledge that people have from previous learning, the facts that they know, is rooted in past experiences and is the ability to retrieve that knowledge. Reading comprehension and vocabulary exams are examples of situations or activities where crystallized intelligence is required. With age, and especially from age 6 upwards, we acquire more knowledge and we understand more, improving our crystallized intelligence.

Thinking, reasoning abstractly, seeing complex relationships and solving problems are fluid intelligence and is separate from learning, experience and education. We use fluid intelligence when confronted with a new problem that we have no knowledge or experience in solving it. As we get older, and cognitive skills decline, fluid intelligence also deteriorates. This can be seen in people who enjoy doing crossword puzzles, the older they get, and especially in late adulthood, the more they lose the ability to solve crossword puzzles.

The Theory of Multiple Intelligences by Dr Howard Gardner, identifies 8 intelligences namely: logical-mathematical, verbal-linguistic, interpersonal, body-kinesthetic, musical, visual-spatial, intrapersonal and naturalistic.

Logical-mathematical intelligence is our intellectual intelligence such as logic, critical thinking, organizing, and making and reading graphs.

People with high verbal-linguistic intelligence are, for example, good at writing poems and using words that rhyme, reading and creative writing, story-telling and learning other languages.

Interpersonal intelligence involves the ability to interpret and understand other people's emotions and be receptive to their moods, grasping etiquette and social norms of any given situation and the ability to motivate, coordinate and lead people.

Individuals who have high body-kinesthetic ability are good at moving and controlling their own body and handling and moving objects around. Gymnasts, dancers, sportsmen, and soldiers are examples of careers people with body-kinesthetic intelligence follow.

Musical intelligence is linked to rhythmic and harmonic music. People with musical intelligence can interpret sounds, rhythms, tones and pitches. They can play musical instruments and compose music.

Visual-spatial intelligence is associated with the ability to visualize something in your mind's eye, such as reading a map, judging distances and getting through a maze.

Intrapersonal intelligence is the ability to understand and know yourself, to understand your emotions and feelings, being able to control your thoughts, and know your strengths and weaknesses.

Persons who have good naturalistic intelligence, recognize things in the real world: plants, trees, flowers, animals, bugs and creatures. Fishermen, hunters, botanists, biologists, and chefs are examples of people with naturalistic intelligence.

The website 99designs defines creativity as: "the ability to transcend traditional ways of thinking or acting, and to develop new and original ideas, methods or objects."

Creativity is a skill or ability that individuals have, for example, the ability to dance, sing, do calculus, play a musical instrument, paint, draw, etc. Some people have natural creativity and for others, their creativity side improves with practice, time and effort.

Creative people notice the limitations of things that already exist and go above and beyond to improve things. Creative people do more than just imagining and day dreaming, they are doers and develop new and original things. Their acts, ideas, creations and products change an existing domain.

In his book Human Motivation, Robert E. Franken states: "In order to be creative, you need to be able to view things in new ways or from a different perspective."

Conclusion

People grow and development their whole lives, growing from infancy to childhood to adulthood and then growing old. Everything needed to grow up is encoded in the genetic makeup, DNA. Researching and studying the stages of development has given us an understanding of the complex inner workings and abilities of people. Given the right environment of love and nurture, proper development takes place. Unfortunately, many millions of infants born every day around the globe are born into poverty where misery, hopelessness, disease, hunger, lack of amenities

and education, absence of access to medical resources and facilities, unemployment and no hope for a future awaits them.

Humans are undoubtedly the most intelligent creation and they have dominion over living things and the world at large. Being intelligent, we have harnessed the resources of the globe and made new things. We continue to advance and develop our societies because we are able to communicate with each other. There is no boundary on what we can achieve. Our thoughts and ideas have become real things that help us every day.

How I will apply this new knowledge in my life

I am currently living and working in China as an English Teacher. Learning about human growth and development has given me insight into understanding my students. I better understand the difficulties they have with learning a second language that they do not use outside of the classroom. They struggle with remembering what I have taught them. I will do more revision with them because I know now that language acquisition is a long process. I will be more loving and nurturing, to help them cope with the challenges of learning.

The society here is closed to outsiders, and is steeped in traditions and beliefs that date back 5 thousand years. Therefore, I cannot make vast changes to this society, however, I am motivated to do more volunteer work internationally where help is much needed and wanted. I am also

particularly interested in donating to SOS Children's Villages to help one child have a better future. Studying this course has made me aware of the desperate plight of disadvantaged children around the world. I am also going to encourage other people to do the same, volunteer and donate.

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