Dermatoglyphics: Blueprints of Human Cognition on Fingerprints

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Abstract: From time immemorial, human beings have craved upon the idea of knowing the unknown. Quite surprising though, getting to know the future that has not even occurred, has been bestowed greater importance than what we all have already been born with. Fingerprints are the mirrors to our inborn talents and potentials, knacks and likings. If not recognised duly and well in time, they may remain shadowed all through a person's life. What follows next is a life full of resentments and frustrations of underperformance at work or dissatisfaction of occupation. This study reveals such peculiar details of people born with above average intelligence in some specific areas, taking into account their fingerprint patterns and correlating them with their behaviour and personality type.
Keywords: Cognition, Dermatoglyphics Fingerprint patterns, Human behavior, Learning type, Personality type.

Introduction

Humans have always been intrigued by the skin carvings and ridges, which quite fascinatingly, follows some or other pattern. Skin ridges and carvings exclusively include fingerprints, palm prints, prints on the sole of foot. No one knows where these patterns have got their exquisite shapes. Speaking of fingerprints, around ten patterns have been identified and classified so far. The largest fingerprint database is created by Integrated Automated Fingerprint Identification System (IAFIS) available accounts for over a hundred million fingerprints. It is maintained by the Federal Bureau of Investigation (FBI). According to developmental biologists, prints are prenatal. Developed in mothers' womb during 13th to 18th week of pregnancy, they are largely influenced genetically [1]. According to medical science, the ridge growth takes place in synchronisation with Neocortex. The Neocortex, which is a learning system, is primarily brain's centre of intelligence. Its structural makeup has much to contribute towards an individual's ability to perceive, learn and react to an input. Intelligence is as much effected from environment as much it is present since the brain development of foetus. It deals with how the brain operates distinctly in males and females under same situation, emotions affecting the acuity, not leaving behind the immense impact our genetic makeup and environment makes over the individualistic and socio-cognitive ability.

The dynamic structure of Neocortex changes dramatically over a lifetime [2]. Quite interestingly, fingerprints, which develop complementary to cortex, do not alter. Though, studies have claimed to notice variations in palm prints of passive hand of a person over course of time [3]. If neurobiologists claim such a link between fingerprint ridges and cerebral cortex, intelligence is bound to reflect from fingerprint patterns. Dermatoglyphics is the science that analytically studies finger ridges or carvings.

There has been quite an upheaval regarding determining learning abilities and personality type of an individual by looking at her dermal ridges, especially fingerprints. Intelligence quotient has a deep effect on people. Most of it is preconditioned. On the contrary, according to psychologist Howard Gardener there are nine different types of intelligences [4]. On an average, each human being portrays three or four different types, one prominent than other. Dermatoglyphics focusses on analysing the intelligences that a person is born with by simply looking at dermal ridge patterns on fingers. The bilateral symmetry of cerebrum [5]reflects upon the functionality of similarly symmetric limbs. The left part of brain controls motor and sensory mechanism and so does the right part of brain with left half of body. The major role played by Neocortex in learning and memorizing a situation and registering consequent changes in the environment, lead a human being to an intellectually conscious being. She can counter events, reflect upon changes and variations, learn from experiences and develop measures or tools in response to events that may be favourable or fatal for survival. The unique levels of intelligence displayed by different individuals depends upon the unique pattern of grooves or sulci developed in prenatal stage. According to developmental biology, Neocortex development goes hand in hand with other groove dermal developments [6].

1. HUMAN BEHAVIOUR AND COGNITIVE RESPONSE TOWARDS SURROUNDINGS

A. Learning styles

Learning styles of a person relates to her ability to approach something playfully or plan fully. The preferred learning style of a person can be – auditory, kinaesthetic or visual. On the contrary, intelligence is the analytical and computational ability of corresponding mental system. Difference in perception styles leads to two

linguistically intelligent people to choose contrasting careers, one going for law or journalism whereas other taking up poetry. Human cannot visualize intelligence. They need to compute numerical, language, presentation of thought, speech, social relations as well as spatial relations. One feels the urge to initiate a thought or action, in reflection to what others have projected upon him/her. According to Barbe et al[7] [8], there are three primary learning modalities. A person can have more than one, naturally or imbibed over the course of time. They may also get altered with age. These are as follows

Visual – Picture, Shape, Sculpture, Paintings
Kinaesthetic – Gestures, Body Movement, Object Manipulation, Positioning
Auditory – Listening, Rhythms, Tone, Chants

Neil Fleming's VARK/VAK model [9] adds another class which is Read / write preference learners. If students are made to focus their efforts according to these models of learning, they can do better. It is not of more importance want a student is learning, but it makes difference how smartly one learns.Explaining what visually stimulating learning is, we simply take the case of a child sitting in the classroom and grasping each and every thing he/she can see. Whether it be how the teacher's eyes widen while telling something interesting and curious, the movement of lips, gestures and body language. Such is the dependence of a person on his/her learning style, that they prefer to place themselves somewhere where there is no obstruction between them and their preferred medium of information transfer. For example, in this case, the student will prefer to sit in the first bench so that his sensitive visual receptors get no diversion even fromhis fellow classmates. On the other hand, a person stimulated by auditory inputs learns when imparted lectures, discussions, speeches or talks. Such is there competence that listening to components of speech such as pitch, tone or voice modulation, the individual can make out the deeper meanings that underlie the talked content. Through proper psycho-analytical and personality tests, the student must be classified under one of the categories. The last on is the doer. He/she learns better when they perform or implement the idea or theory into some experimental or practical model. They learn better when it involves some sort of activity or task. It must involve lots of gestures, hand and body movement and touching of materials. They are the people who can be trained best by hands-on training or workshop programmes. Sitting for long hours at same place can make the session mundane for them.

The various methods by which an average individual learns a new job, concept or task is by visual input, auditory knowledge or by doing them himself and learning in the process. The final one is kinaesthetic type of learning mechanism. The children who are prone to use visual means of information like displays, graphs, charts for better understanding of a concept are the ones gifted with visual learning style. They do better in their studies when taught using slides and overhead slide presentations or even textbooks. They differ from their counterparts who have a knack for group studies or learning from auditory inputs. Such people speak out the lessons loudly and memorize them by listening through the whole session. It has also been observed that such students have an inherent knack in music and can study better when some soft instrumental music is played. There is yet another class of learners, who are better off doing some activity rather than understand it by simply reading or writing. Psychological experts have found that these kind of learners indulge in some physical activity while concentrating on academic lessons. It maybe roaming around in a place, bouncing balls etc. They are also found to take keen interest in activities involving acting, sports etc.

B. Personality types – DISC profile

According to dermatoglyphics studies, a person can be categorised to having one of the following personality characteristics and behavioural tendencies which may be dominant, steady, complaint or influential [10]. For example, a person with a loop on his left thumb is of steady nature whereas one with a whorl is a complaint or dominant one, depending on the type of pattern. The four major personality types include Dominant, Influential/Inspiring, Steady/Sufficient and Compliant/Cautious. The personality types can be well understood if they are measured in terms of their social and professional behaviour. The dominant class of personality types are of outgoing nature with an attitude which is task oriented. On the other hand, inspiring/influential class is somewhat outgoing but of people oriented nature. The steady or supportive kind are reserved but people oriented, while the compliant/cautious lot is more of reserved but task oriented nature. A people oriented person loves working in team, is much social and interactive in his/her behaviour towards others. On contrary, a task oriented person focusses completely on getting his job done with ultimate precision, right on time. An outgoing person does not keep himself confined to boundaries of his inner self when it comes to accomplishing a task, while a reserved kind of person is more of self-dependent in his professional or personal pursuits.

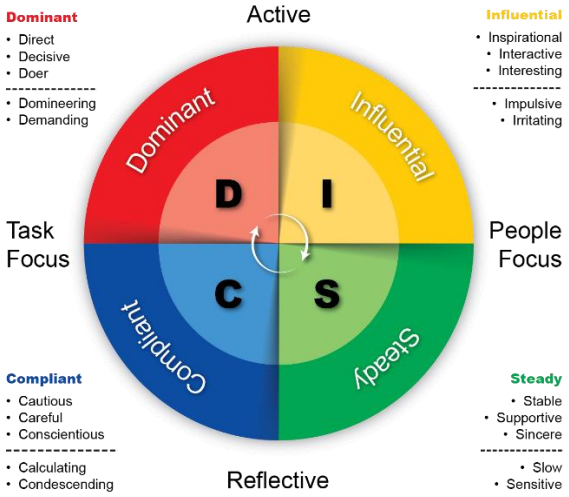

Fig 1. Dominant-Influential-Steady-Compliant personality profile

A person on general can be classified into one of the above mentioned personality types. Although, it may happen that he/she is a mix of any two, both natures getting expressed at different situations. A person can either be dominant, influential, and compliant or steady in nature, in a social or accomplishing a task in a professional environment. The behavioural tendencies ca be primarily be of four types. A person can either be outgoing, reserved, task oriented or people oriented.

C. Preferred acquisition style

The modes of acquisition of knowledge [11] regarding a fact or happeningfrom the surrounding are called the preferred acquiring styles. They may vary from self-cognitive, those who learn by reading, writing and teaching themselves, creating a way of their own; Affective learners, reverse thinking or contrarian as well as reflective learners. They have been proved to be quite scientific and relevant. For instance, people with naturally acceptable auditory efficiency are prone to verbal interactions either with fellow students or the educator. They become good orators, speakers, counsellors who are comfortable interacting with fellow individuals. On the other hand, kinaesthetic learners have the tendency to act upon a task for better understanding and learning. It is observed that the various learning styles can be well off correlated with above mentioned preferred styles of information acquisition.

The self-cognitive style are very much dependent on themselves, when it comes to conceptualising a thing. Sometimes it becomes tough to make such subjects understand a prospect from an angle that is more widely accepted. They tend to learn from the mistakes they make over the course of experiencing something. Highly self-motivated, they believe in their own believes and acquired knowledge. Not much verbal when it comes to answering to others, they are goal oriented and find inspiration from their own achievements. They hold high self-esteem and are amongst those few people for whom personal space and decision making is more significant than accepting others' opinions. The affective type of learner are the ones who are affected and inspired from matters around them. It may range from learning something from media to getting motivated from inspirational biographies. They thrive upon others, to be guided or tutored upon, although it all may take place in an indirect fashion [12]. They conceptualise an idea all by themselves, but only after an example of its unmodified version has been experienced by them. Next comes the class of reflective learners. They have high potential of accumulating knowledge, especially when imparted on a one to one format. They can absorb all they have been taught but understand only when the teachings have been repeated [13]. They are highly driven by the recognition they get or the failures they encounter. Highly philosophical and conscious about the life, these kind of people reflect deeply upon day-to-day activities. The last category of acquiring styles is that of critical or reverse thinking contrarian type learners. They can be coached when given a challenge, they do not accept others' ideologies and tend to go against the tide. They are the ones who learn by reflecting upon the reverse reasoning of what they have been imparted to.

D. Innate quotients of intelligence

Intelligence is a metaphysical aspect. It might be understood or evaluated based on certain characteristics, qualities, or attributions. It is more of a phenomenon than an element. Intelligence includes various capabilities of a person to comprehend ideas, to think, learn, reason, strategize, memorize, create etc. it can never be bound up to the limits of training and academic education. An individual's instinctive ability to react to a situation with a particular action reflects upon his/her cognitive makeup. Addressing a situation requires a complex mix of various potentials that may be innate or acquired over period of time. However, the conscious or subconscious

appliance of knowledge and skills to act upon a situation showcases his/her profound quotients of intelligence. So far, five major types of quotients of conscious are discovered. They are Intelligence Quotient (IQ), Emotional Quotient (EQ), Creative Quotient (CQ), Adversity Quotient (AQ) and Spiritual Quotient (SQ).IQ is the ability to reason, think and adjust to changing environment. It includes the logical mathematical and linguistic intelligence types. Emotional quotient is the ability to think abstractly and understand others' emotions and manage emotional understanding to work better as a team. The emotional quotient of intelligence [14] affects the logical as well as linguistic intelligences.Creative quotient of intelligence is the ability to imagine new things, not experienced before. T is unique ability to create new things and bring down ideas to reality. It covers the musical and spatial intelligences. The interesting thing about the adversity quotient of intelligence is that it deals with the varying degree of competence a person shows while dealing with an adverse situation effectively and endure it for long term benefit. This quotient is important to determine the fact that who will stand to the situation and who will give up. Although it has been found that humans can learn to endure and face situations of crisis with mental perseverance.

2. HUMAN BRAIN

A. Left and right brain bias

The human brain is made up of two morphologically symmetrical cerebral hemispheres. Though, functionality of both vary. In terms of behaviour of a person, the logical – computational abilities are handled by the left hemisphere whereas the aspects of human life that deal with emotions, passion, creation, intuition, are all controlled by the neural circuitry of right hemisphere. Apart from it, there are lobes into which a brain can be segmented functionally [15].

On the basis of classification into lobes, the brain can be studied as composed of frontal lobe, superior and inferior, parietal lobe, temporal and occipital lobes.

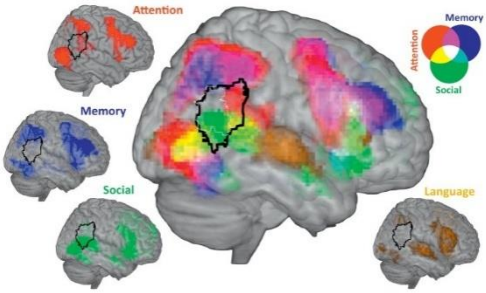

Fig 2. Brain functional localisation (courtesy: Trends in Cognitivescience)

Before studying the lobes, we must know what left and right halves of brain are responsible for, as far as human abilities and behaviour are concerned. The left hemisphere corresponds to academic expressions, which includes logical mathematical, computational as well as linguistic abilities. To look into something deeply, with proper perception and comprehension, deriving conclusions and logical verdicts, compare with past and present experiences, form strategies and sequential plan of actions, and practical and cautious planning of methodologies. On the other hand, people with pronounced right brain expression have the natural tendency to look at matters on a bigger holistic note. They are very random and subjective in thinking capabilities. They rely on emotional expressions easily, while behaving, and believe and appreciate objects with similar nature. They are found to possessdefined spatial perception. Adventurous and carefree in nature, such people are impulsive and spontaneous in nature and take risks. Mild in nature, they see possibilities when things go out of way. Not much planned like their counterparts, they base their actions on intuition, feelings, fantasies and are very proficient at synthesizing concepts and ideas.

The superior frontal lobe deals with ability of a person to judge, have foresight on matters and affect motor organs for voluntary movement. Beyond the superior frontal lobe, lies the inferior frontal lobe which governs the bodily movements or kinaesthetic of humans. The control and coordination of basic physiological functions can be well off understood by studying lobes and their functions. But conceptualising intelligence and giftedness is altogether, a different approach.

B. Brain lobes functionality

The cerebral cortex can be divided into four sections, which are known as lobes. The Frontal lobe, Parietal lobe, Occipital lobe and Temporal lobe have been associated with different functions ranging from reasoning to auditory perception.

1) The Frontal Lobe (mainly used for Thinking and Imagination)

It is located at the front of the brain and is associated with reasoning, problem solving, Logical thinking, computation process, Rationalization, Linguistic function, Visual spatial imagination, idea formation and

conceptualization. At the back of the frontal lobe, near the central sulcus, lies the motor cortex. This area of the brain receives information from various lobes of the brain and utilizes this information to carry out body movements.

2) **The Prefrontal lobe (corresponds to Mental Ability)**

The anterior (front) portion of the frontal lobe is called the prefrontal cortex. It is very important for the "higher cognitive functions" and the determination of the personality. It assists in planning, management, communication, coordinating, controlling our behaviour and emotions. It also regulates our creative ability, leadership qualities, intuition and visualization.

3) **The Occipital Lobe (primarily used for Visual Perception)**

It is located at the back portion of the brain and is associated with interpreting visual stimuli and information. The primary visual cortex, which receives and interprets information from the retinas of the eyes, is located in the occipital lobe [16]. The left part controls Visual Identification, observation and reading comprehension and the right part controls visual and image appreciation ability.

4) **The Parietal Lobe (governing Kinaesthetic Ability)**

It is located in the middle section of the brain and is associated with processing tactile sensory information such as pressure, touch, and pain. A portion of the brain known as the somatosensory cortex is located in this lobe and is essential to the processing of the body's senses. It is responsible for Movement differentiation, Physical Movements, Operation understanding, Bodily mobility, rhythmic movement, muscle coordination & Physical appreciation.

5) **The Temporal Lobe (governing Auditory Perception)**

It is located on the bottom section of thebrain. This lobe is also the location of the primary auditory cortex, which is important forinterpreting sounds and the language we hear. The hippocampus is also located in the temporallobe, which is why this portion of the brain is also heavily associated with the formation ofmemories. The left part controls Phonics differentiation, Language understanding & SoundIdentification ability and the right part controls auditory and music appreciation ability.

C. Intelligence and giftedness… explained!

Getting to know how people perceive what actuallyintelligence is, different answers are bound to surf. As much as it varies from one culture to another, so does it from what different members in the same culture value the most. On an average, intellect or giftedness can be defined as above average level of intelligence in one or more behaviours.

An intelligence refers to complex bio-psychological potential of human beings to process certain kinds of information or data or input from the nature around him in a way of his own. It henceforth, involves different processes that are carried out by dedicated neural network and connectivity. It is of no doubt that different intelligences have their own characteristic neural processes. They may have been incorporated from his/her home environment, peer group, social circle or various daily experiences that came across. The mind adapts to function in a way it has decided on its own and which suits the optimal requirements of the person.

From evolutionary point of view, it is evident that each kind of learning ability or intelligence [17] was not as self-content as it seems. Once a capacity emerged, on how to deal with contents of predictable world, there is nothing that forces it to remain as original it was, during conception. A human mind has the ability to compute. Whether it be a language or number or social relation or the spatial relations. It becomes far easy going had it been his/her inherent domain capability.

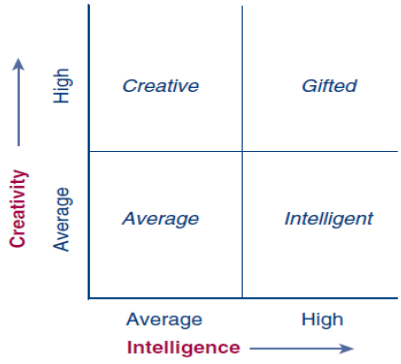

Fig 3. Creativity vs Intelligence chart

D. Role of genetic makeup

If natural inborn talent or giftedness is to be studied, then we need to focus on an individual's genetic makeup [18]. Researchers study identical twins to distinguish between the level of intellect contributed from gene and the remaining, which arises due to environment factors. This is necessary because some intellectual traits of humans are found to express fully when conventional style academics are imparted to the subject. To discriminate between the intellects shown by average and above average people, marker genes are selected which are found to contribute whatsoever, to intellectual capabilities. Although, such participation of genes in intelligence is very minor. But studying genes can be a task of controversy because these trait expressing genes characterise differently when provoked in different environments. Hence, great deal of indifference and variability can be observed. It also to be noted that genes express differently in various socio economic conditions.

E. Is brain structure related to intelligence?

Over the years of strenuous study, developmental biologist have pondered over the idea of relating how the structure of brain relates to how we behave, perceive, invent etc. It cannot completely be ruled out that such a relation exists. Analysing section of brain that processes sophisticated information, it is found that cortex and its development has major role to play. This part of brain continues growing differently according to various environment and genetic factors, up to the age of 22 – 24 years. Majority of neurons are bundled in here and as they grow in number, thicker does the cortex get. But brain has its own way of dealing with redundant neurons. The ones not in use for prolonged periods get removed and cortex becomes thinner. This development already takes place when the subject is in his/her teens. Scores of studies and researches have shown that greater volume of grey matter have been found in and around both frontal and parietal lobes, contrary to earlier theories that only accounted for frontal lobes. The Parieto-Frontal Fit (P-Fit) theory [19] exclaims that high intelligence is related to higher processing power of information with speed. Such activity takes place in regions associated with attention, memory as well as complex cognitive functions like language and processing of sensory information.

3. MULTIPLE INTELLIGENCES

Human intelligence is the ability to learn, conceptualize, and derive meaning from pre-perceived consciousness from society or self and then applying reason or logic. Other cognitive abilities that may follow include ability to solve a problem, make decisions, retain in memory and using some set protocols of communication. Humans are exclusively known to communicate in verbal language. To think and reflect upon, makes the man a creation unique in its own terms. Robert Stenberg provided a formal definition as "*your skill in achieving whatever it is you want to attain in your life within your sociocultural context by capitalizing on your strengths and compensating for, or correcting, your weaknesses*". Path breaking research was done by Harvard professor Dr Howard Gardener. He claimed that conventional idea of evaluating a person based on his intelligence quotient, which according to him, was based only on logical-computational and linguistic ability and to some extent, assess spatial intelligence, was not enough to quantify the skills of a person in a holistic way. According to him, intelligence was something defined as, "*a biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture*". Though never peer reviewed, Gardener's claim remains debatable till date. He was criticized for being biased politically so as to appreciate the inherent uniqueness in every individual. Still, his works provide a new dimension altogether. Dermatoglyphic experts could relate themselves most. When talking of multiple intelligences, mutually exclusive but effective personality types come under the scanner. Other well-established theories of intelligence including psychometric approaches of Robert Stenberg's Triarchic theory of intelligence [20], A. R. Luria's PASS theory of intelligence[21]and Piaget's theory of cognitive development [22] have been strictly kept off the pages due to their insensitivity towards the matter of relevance. The theory of multiple intelligences focusses primarily on seven types of intelligence, namely – logical – mathematical, linguistic, spatial, bodily – kinaesthetic, interpersonal, intrapersonal and musical. Later on, two more abstract kinds were included. These were natural and existential kinds of intelligences. It is anticipated that every individual has all these intelligences to some extent, but the difference lies in the pattern of how strong or weak is the understanding of them. Howard described them as follows

1) Visual/Spatial

Ability to perceive and mentally manipulate a form or object, and to perceive and create tension, balance and composition in a visual or spatial display [23]. They showcase a strong knack to create visual-spatial representations of the world and to transfer those representations either mentally or concretely. They have the ability to think in three dimensions. Core capacities include mental imagery, spatial reasoning, image manipulation, graphic and artistic skills and an active imagination.

Sailors, pilots, sculptors, painters and architects all exhibit spatial intelligences. Young adults with these kind of intelligence maybe fascinated by mazes or jigsaw puzzles or spend free time drawing or day dreaming.

Learning visually and organizing ideas spatially. Seeing concepts in action in order to understand them. The ability to "see" things in one's mind in planning to create a product or solve a problem.

2) Verbal/Linguistic

Ability to use language to excite, please, convince, stimulate or convey information. Involves not only ease in producing language, but also sensitivity to the nuances, order and rhythm of words [24]. It is the capability to use language to express what is on the mind and to understand other people. Any kind of writer, orator, speaker, lawyer or other person for whom language is an important stock in trade has great linguistic intelligence. It is the most widely shared human competence and is evident in poets, novelists, journalists and effective public speakers.

Young adults with this kind of intelligence enjoy writing, reading, telling stories and doing crossword puzzles.

Learning is through the spoken and written word. This intelligence was always valued in the traditional classroom and in traditional assessments of intelligence and achievement.

3) Mathematical/Logical

Ability to calculate, quantify, consider propositions and hypotheses, explore patterns, categories, carry out complete mathematical operations and relationships by manipulating objects or symbols, and also to experiment in a controlled, orderly manner. Ability to reason either deductively or inductively and to recognize and manipulate abstract patterns and relationships. Thus it enables the person to perceive relationships and connections and to use abstract, symbolic thought, sequential reasoning skills as well as inductive and deductive thinking patterns.

This type of intelligence is usually well developed in mathematicians, scientists, detectives. Young adults with lots of logical intelligence are interested in patterns, categories and relationships. They are drawn to arithmetic problems, strategy games and experiments. Learning is through reasoning and problem solving. Also highly valued in the traditional classroom, where students were asked to adapt to logically sequenced delivery of instruction.

4) Bodily/Kinaesthetic

Ability to use fine and gross motor skills in sports, the performing arts, or arts and crafts production. Body smart, as they are called, these kind of people are able to manipulate objects and use a variety of physical skills. This intelligence also involves a sense of timing and the perfection of skills through mind-body union. Bodily Intelligence involves using the body to solve problems, to create products, and to convey ideas and emotions.

Athletes, dancers, surgeons and craftspeople exhibit well developed bodily kinaesthetic intelligences.

Learning through interaction with one's environment. This intelligence is not the domain of "overly active" learners. It promotes understanding through concrete experience.

5) Musical/Rhythmic

Ability to enjoy, perform or compose a musical piece [23]. Includes sensitivity to pitch, rhythm of sounds, as well as responsiveness to the emotional implications of these elements. It is the ability and knack to discern pitch, rhythm, timbre and tone. This intelligence enables us to recognise, create, reproduce and reflect on music, as demonstrated by composers, conductors, musicians, vocalist and sensitive listeners. Interestingly, there is often an affective connection between music and the emotions; and mathematical and musical intelligence may share common thinking processes. Young adults with this kind of intelligence are quite aware of the sounds that others miss.

Learning is through patterns, rhythms and music. This includes not only auditory learning, but the identification of patterns through all the senses.

6) Intrapersonal

Ability to gain access to understand one's inner feelings, dreams and ideas. Personal knowledge turned inward to the self. This form of intellect entails the ability to understand one's own emotions, goals and intentions. It is the kind of intelligence of a person that deals with sensitivity and capacity to tackle deep questions about human existence, such as the meaning of life, why one is born in this world, what is the purpose of one's existence, why do we die and how did we get in here. They have the capacity to understand oneself and one's thoughts and feelings and to use such knowledge in planning and giving direction to one's life. Intra- personal intelligence involves not only an appreciation of self but also the human condition.

Such young adults maybe shy. They are aware of their own feelings and are self – motivated.

Learning is through feelings, values and attitudes. This is a decidedly affective component of learning through which students place value on what they learn and take ownership for their learning.

7) Interpersonal

Ability to understand other people, to notice their goals, motivations, intentions and to work effectively with them. Empathize with others [23], observe and understand others' moods, feelings, temperament. It is the ability to understand and interact effectively with others. It involves effective verbal and non-verbal communication, the ability to note distinction among others, sensitivity to moods and temperaments of others, ability to entertain the people's perspectives.
Teachers, social workers, actors, politicians – all exhibit interpersonal intelligence. Young adults with this kind of intelligence are leaders among their peers, are good at communicating and seem to understand others' feelings and motives.
Learning is through interaction with others. Not the domain of children who are simply "talkative" or "overly social." This intelligence promotes collaboration and working cooperatively with others.

8) Naturalist

Ability to recognise flora and fauna, communion with the natural world and its phenomena. This kind of talent designates the human ability to discriminate among living things as well as sensitivity to other features of the natural world like clouds, rocks configurations. This ability was clearly of value in our evolutionary life when we were hunters, gatherers and farmers and it continues to be a central in such roles as botanists and chef. Involves the full range of knowing what occurs in and through our encounters with the natural world including our recognition, appreciation, and understanding of the natural environment [23]. It is also speculated that much of our consumer society exploits the naturalist intelligences which can be mobilized in the discrimination among cars, sneakers and kinds of makeup and the like.
Learning is through classification, categories and hierarchies. The naturalist intelligence picks up on subtle differences in meaning. It is not simply the study of nature; it can be used in all areas of study.

9) Existential - Learning by seeing the "big picture": "Why are we here?" "What is my role in the world?" "What is my place in my family, school and community?" This intelligence seeks connections to real world understandings and applications of new learning [23].

10) Pedagogical – Intelligence that allows human beings to convey knowledge and skills to others.
Assessing humans based on IQ is like having a general purpose computer. If the system performs well, it implies a higher IQ, a normal IQ for average and low IQ for poor performances respectively. But the concept of MI, on contrary, relates to having several relatively independent computer systems. A person with high/low linguistic ability may or may not have musical ability. And the beauty lies in the fact that one cannot be predicted from other.

Processing of information corresponding to different intelligences might prove to be similar for many people but some of them are more customized. The genetic makeup as well as experiences from environment contributes to the uniqueness and exclusivity. Even among identical twins, the experiences in utero are different, though the genetic profile is same. From an educational point of view, it can be stated that some students learn best by building something, some learn from reading or listening to others' perception of the matter. Some may even learn when the story has been acted out. We live in a preconditioned way, where every intelligence type pertains to certain contents of the world. Rarely does it come to be noticed, this notion can be contravened. For example, the neural processes that evolved for recognising and distinguishing species in nature is nowadays used in recognizing commercial products in sociocultural platforms. It signifies that evolutionary natural intelligence can be well off applied in cultural perspectives of modern man. Unless validated models of neural processes occurring while a certain intelligence is in use, one cannot firmly claim that multiple intelligences are mutually exclusive in functionality.

4. FINGER PRINTS

Fingerprints are the mirror to a human being's individuality. The complete information regarding his genotypic makeup is claimed to be reflected in works of established researchers. It is no coincidence that epidermal ridges on skin of our limbs form certain patterns, mostly of which are curvilinear. Some resemblance can be found in sulci or cortical grooves in brain hemispheres. It is also evident that various limb terminals are actually nerve endings to special brain lobe locations. The terminal organ skin is highly sensitive. Till date, researchers have widely used fingerprint minutiae as points of reference to establish any uniqueness. In this paper, ridges and furrows have been studied and linked with localised brain functionality, learning style and socio-cognitive behaviour. They develop during the 13^{th} to 18^{th} week of gestation [24-26]. The anatomy of fingerprints and their growth is well illustrated in this image.

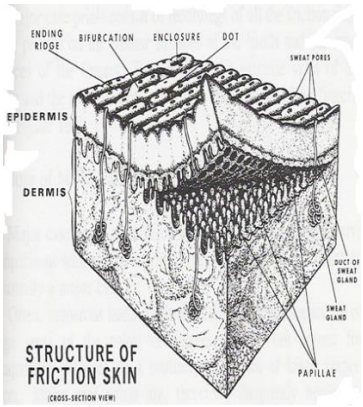

Fig 4. Cross sectional structure of friction skin

The skin is composed of three anatomical layers of dermal tissue cells. These are epidermis, dermis and hypodermis. The ridges surface or volar cells, as they are primarily called, have morphology that suits their functionality. Between the epidermis and dermis, there exists a layer of dermal papillae. This layer forms the patterned ridges. Each of the ridges have pores on them, which secrete sweat and cause the finger pads to leave invisible to eyes, latent fingerprints.

The ridge patterns have been broadly classified into five types, namely, arch, tented arch, whorl, ulnar and radial loop. A person can have any of the above in any of the fingers. Still, majority of fingerprints found in population survey shows that 70 percent of the prints are loops, 20 – 25 percent being whorls whereas only 5 to 10 percent count as arch or tented arch patterns. Studies conducted have proven that chance, heredity as well as genetic makeup of a person all contribute to the type and occurrence of a pattern in a finger. Some studies done on twins have concluded that monozygotic or identical twins have similar but not identical patterns. Though the studies use a vast expansive data of minutiae points, here we have restricted ourselves to the core of patterns. Most of the prints have equally spaced ridges. Fingerprints can readily tell about the kind of personality a person may have, his/her preferred learning style as well as mode of easy, naturally acceptable learning. Fingerprints can be acquired either physically or using some electronic equipment that captures the print. The physical means of acquisition include fingerprints that are plastic, latent or even visible in nature. The plastic fingerprints are gathered by taking the impression on soft material like butter or soap. The latent fingerprints are so far, the most effective ones. They are generated due moisture and oil secretion from sweat glands present beneath the skin. Since they are usually invisible to the naked eye, hence insufficient to be used for pattern recognition, unless developed. The process may include coloured powder sprinkled on them or chemical treatment. The chemicals used are iodine, ninhydrin or silver nitrate. The patterns may also be acquired by digital scanner. It uses advanced CMOS sensor technology to deliver high quality fingerprint images. Scanning is usually done at a resolution of 500 dpi on a scanning window of around 16 mm by 24 mm. The images are 8 bit 256 grayscale. The fingerprints can be either a loop, a whorl or an arch. A loop is defined by a pattern where ridges start from a side, rise towards the centre and return back to the side where they started from. Loops usually have one delta and can either open towards the thumb or the little finger. They are the most frequently occurring ridge patterns, occurring in around 60 percent of fingerprints. A whorl is the next most frequently occurring type of ridge pattern. A whorl is characterised by two deltas and one central circular core. The core may have different patterns. It may be spiral, concentric circles, vertically compressed circles or even of the shape of eye of a peacock feather. The ridges start from one end, rise and circle towards the centre and go down towards the other end. Each pattern characterises a different kind of cortical fold around the specific brain lobe the finger is associated with. Hence, the phenotypic makeup gets altered from man to man, finger to finger. Other studies have primarily focussed on minutiae points which are specific ridge sections that are somewhat present in almost every fingerprint. At least 12 minutiae points are needed to validate a person's identity. There are around nine types of such recognised minutiae points. They are, namely, bifurcation, trifurcation, dot/ island, spur/hook, bridge, delta, pore, crossover, lake etc.

5. CONNECTION OF FINGERPRINTS WITH BRAIN

A. Origin of Epidermal Growth Factor (EGF) and Neural Growth Factor (NGF)

The key to the fact that fingerprint patterns are related to brain's cortical folds is held by embryogenesis. Embryogenesis is the study of development of a single cell into a complete complex organism. All life forms initiate from a single cell, which is called the embryo. It is the latter stage of zygote, which is the result of fusion of the male and the female gamete cells sperm and ovum, respectively. This unicellular entity develops into a formation that consists of three distinct layers of cells. These layers are formed in similar manner with little

differentiation. They are namely, Ectoderm, the outer layer, Mesoderm, the middle and Endoderm, the inner one.

It has been found through years of toiling research that there are several neuro-physiological processes and interactions that occur amongst these layers of cells, which further differentiate into various organs having distinguished biochemical processes along with different morphology. Hence, it is queer to relate something like neuronal activity to that completely exclusive, skin or epidermal growth. Path breaking research was done by Dr Rita Levi-Montalcini and Dr Stanley Cohen in the field of Physiology supported biochemistry that won them the Nobel in 1986 [27-32]. Their work has been summarized under for further reference.

The fact has been massively supported by the work by of Canadian neurobiologist Wilder Penfield who established the functional connection between fingerprints and various locations of human brain.

B. Evidence for relation between brain and fingerprints

The neural tube defect, also famously known as Anencephaly is the absence of the prime brain portions, skull as well as scalp. It occurs due to failure in complete and proper development of cephalic end of neural tube. A foetus born with such deformity usually has no forebrain. The forebrain is the largest portion of a mammalian brain and governs all thinking abilities and organ coordination functions. It has been observed that such babies are devoid of any fingerprint ridges too.

Several medical conditions have also been correlated to fingerprints and there pattern occurrence. Such conditions need be congenital defects. They are Down's Syndrome, Klinefelter's Syndrome, Cerebral Palsy, Schizophrenia, congenital diabetes and cardiac diseases etc.

In the path breakingneuro-embryology research undertaken by Dr Stanley Cohen, under the supervision of Dr Rita Levi Montalcini. They studied nerve growth activity around the periphery of a grafted tumour tissues on healthy chick embryos. It was also found that this nerve growth factor, when extracted from snake venom and purified, was thousand times more potent in developing growth nerves when extracted from snake venom rather than extracted from tumour. Next, the epidermal growth factor was studied for assessing metabolic effects of EGF. It stimulates the growth of fibroblasts in human tissues. It was found in human urine. After purifying it, they injected it into mice. The results were astonishing. The mice foetus opened eyelid earlier than normal. It is commonly called as human-EGF. The functional loci of both EGF and NGF are related and regulated by amino acid sequence of transforming protein.

C. Connection of brain locations to fingers

Advanced studies in genetics and developmental biology have claimed that the different lobes of human brain are physiologically connected to different fingers of both the hands. The functional coordination governed by the left half of cerebral hemisphere is related to the fingers of right hand and vice versa. Hence, the convergent left half of brain is connected to the fingers of right hand, the thumb is coordinated by the superior frontal lobe, index finger is connected to the inferior frontal lobe, middle finger with parietal lobe, ring finger with the temporal lobe and little finger with the hind part of brain, which is the occipital lobe. Similarly, the left half of brain is connected to the same lobes of brain. Every lobe area is responsible some or the other sensation of surrounding. However, there occurs slight difference between the functions of right and left halves of brain. Figure 5 duly explains the above mentioned theory.

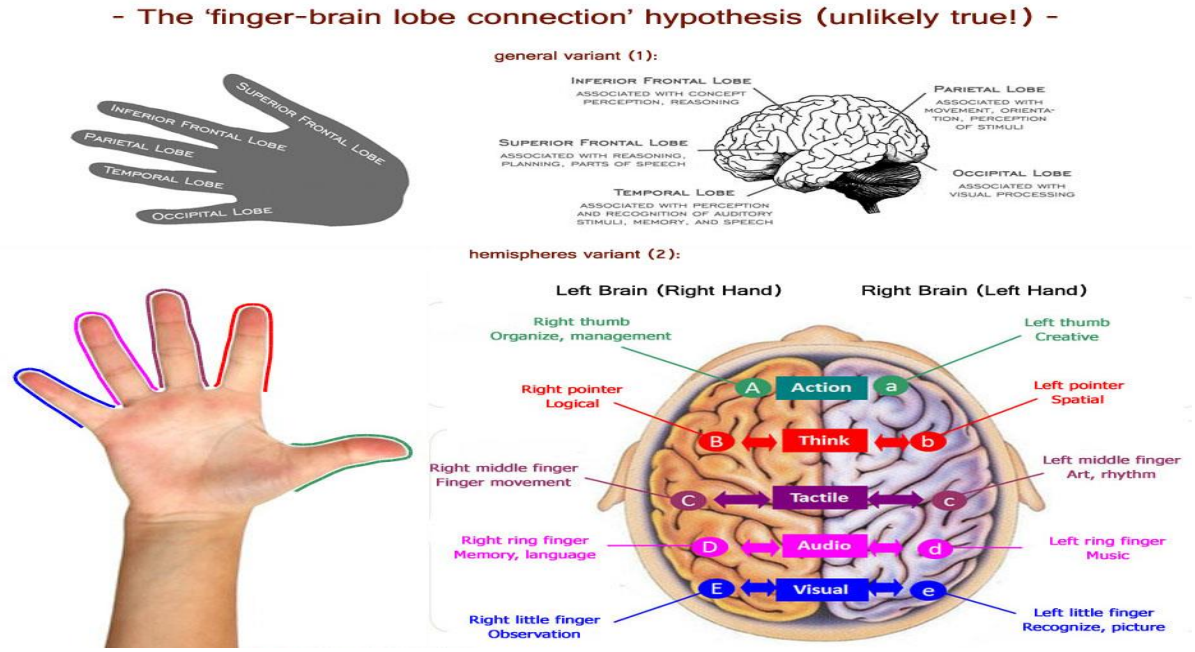

Fig 5: Finger-brain lobe connectivity theory

6. FINGERPRINTS AND BEHAVIOUR

Human behaviour is fuzzy in nature. It cannot be discrete like some conventional mathematical model. It may be understood by an example. When a group of people are assigned a project, the task may be executed on a conservative or liberal note as per the requirements. But whenever the same job is assigned to each person individually, the way of approaching the situation may be very distinct from one another. Their thought process would be majorly effected by certain beliefs or principles of their own rather than competing beliefs from others. Personality and behaviour are so vague and imprecise. They are manipulated, torn by conscious ego, sub-conscious superego as well as the unconscious id. While experiencing a lifetime with certain aspects of life, one tends to pick up things that other people do not.Fingerprints are blueprints to one's self [33-38]. They can tell how perception, emotions, cognition, motivation and finally, the action of a person towards a situation are directed. A person may be very restricted and demands logic while accepting someone else's notion regarding a subject matter, but then at the same time, he/she might feel too unwise to share his/her ideas with others. Such a person is consciously an independent thinker, but then his intrapersonal intelligence restricts him to his own boundaries.

A person has loads of unused intelligence that he/she may be unknown of. It is a matter of utter importance that they be made acknowledged of their hidden talents and potentials in order to help them lead a more fulfilling life. Some people are born to create music like no one else can, while others do much better than others when they involve their physical beings into some act. This may either be playing some sports or acting on stage, they cannot yield high when forced into office works or engineering solutions. A person is what he is born with, and what is better than to recognise his/her innate talent and nourish this prospect. With professional guidance and grooming, an average individual can become someone no one ever imagined of.

It is very important for parents, teachers and other acquaintances of a person to understand that no one is too highly abled than their own wards. Also, no one is born with similar capabilities as others. But each and every person has his/her own talents, some in conventional and some in unconventional fields of life. This uniqueness balances the society and there is huge need to understand this difference.

Fig 6. Arch pattern

A. Arch

Arches account for only 5 – 10 percent of the total fingerprints that are found in any random sample space. People with arches on any finger have showcased settled, rigid or and practical approach towards the corresponding brain functionality tasks. Since they are organised and stubborn in what and how they intend to execute the particular task, these people work in sequential steps. However, this leads them to shadow their emotional quotient in the concerned prospect. People with arch pattern prefer simple lifestyle without much ambition of fast life with money making pursuits. They prove skilful in doing anything that they are trained in. Although, brand names and money does matter to them. They have the capability to improvise efficiently, using anything in surrounding. They do not plan much ahead in time and tend to live in the moment. This is the very reason, they easily get into trouble. Because they cannot visualize consequence of events. Not very open-minded though, they love socializing with people. A knack towards traditional music has also been observed among people with arch patterns.

However, documentation on specific brain functionalities corresponding to thumb, index, middle as well as ring fingers are available. According to it, if arch is present on left thumb which is responsible for creative intelligence, then the person is insecure in interpersonal relationships, keeps correspondences transparent. The individual has been found to have high priority for discipline and punctuality. Apart from it, excellent skills in profession along with infinite learning ability have been observed on him/her. On the other hand, arches on right thumb indicates patience and firmness for organisation and managerial aspects in personal as well as professional life. If arches are present on the index fingers, then the individual shall have practical approach in cases requiring spatial as well as logical intelligence. The middle finger of left hand depicts the fine art and rhythm perception whereas the right one deals with finger movement and brain coordination. People having arch pattern on their middle fingers have an intellectual pursuit for the simple tasks they prefer to perform, related to

performing or creating sophisticated art forms. However, the brain function related to ring fingers on either hands are quite contradictory from elemental perspective. The left ring finger represents part of brain responsible for understanding and creating music. Quite surprisingly, the right ring finger is connected to areas of lobe governing memory and linguistic abilities of an individual [33]. Such people have great craftsmanship in particular music form they pursue in career. They have shown an inherent knack towards artistic aspects of simple art forms like dance. However, no documentation is available for the presence and importance of arch on little finger.

Fig 7.Arch with Loop

If an arch is present such that there is an adjoining loop to it, in any of the above mentioned fingers, it indicates higher intellect in creativity of abstract domains like medicine or science. They have also displayed sharper memories.

B. Tented arch

Fig 8.Tented Arch

Tented arch is a pattern that is characterised by a straight upright ridge at the core of a simple arch pattern. People having tented arches have all the general arch characteristics. But such individuals show inconsistency in their performance in tasks related to the specific related intelligence. They lack steadiness and end up displaying nervous behaviour.Such people come under the effect of easy emotional manipulation by others [34]. Although, they have been found to have a special liking and attachment to musical tunes notes. It comes naturally to them.
People with tented arches can easily adapt to new environment and circumstances. They do not face trouble while changing jobs and places. They always wish to keep people happy and satisfied. They have strong faith in themselves and what they choose to do. Hence, they are not easily manipulated. It takes scores of logic and effort to convince them of anything outside their own thought process. They strictly abide by rules and restrictions. Although, they do not tend to take much interest in art work of others, they themselves follow artistic trends.
Individuals having tented arch patterns want stability in their lives, when it comes to relationships and career. They are emotionally dependent upon close family relatives. Though not very introvert, they love spending time with themselves, reading books and novels, going to movies. They despise taking risks in life and crave for stability in personal as well as professional life. Hence, they are a good fit for administrative jobs.

C. Loop

Loops are the most commonly occurring features on an individual's fingerprints as well as in an arbitrary sample space of several fingerprints. They are characterised by ridges that start flowing from a side of the fingertip, loop around the centre of finger pad, and loop back to the same direction where they started from. These loops can either run towards or away from the thumb. Due to respective location of arm bones - Radia and Ulna, any loop opening away from thumb is an ulnar loop, and the one opening towards the thumb is a radial loop. They account for about 60 – 65 percent of total occurring patterns in whole worlds' population. Hence, analysing them is very crucial. Primarily of easy going nature, such individuals have easiness of expressing themselves and are better at communication skills. They have ability to fare well in almost every aspect. They can maintain a balance between serious as well as humorous sides of matters. They fare better at jobs that require change of place and environment because of their adaptable nature. It has been observed that people having loops on their right thumb are caring and compassionate for others [36]. Much of humanitarian natured. They have better memory of visual-spatial objects. On the other hand, loops on the left thumb indicates outstanding performers with respect to perception, imagination. They think and express straightforwardly and have little or no patience for long sessions of conversation or teaching. They usually fall victim to the existing

education system. They feel bound to ask questions to their faculty which sometimes, may go out of course. If an individual has loops on all his fingers, that person has ability to survive most of the unfavourable conditions. Although, such people hate to be cornered aside and can revolt back if not given prior importance. If there are six or more number of loops in a subject's hands, this signifies easy going affectionate nature, who can easily understand and respond to others' mood changes. They are adaptable and show emotional plasticity or relaxation.

i) Ulnar loop

Fig 9. Ulnar Loop (Opens toward the little finger)

Ulnar loops correspond to sulci folds giving people ability to extract ideas from others, manipulate it their way and publish. They have the potential to observe loopholes in others and inculcate that quality into themselves. They are open to broad ideas, are mild in nature and take active participation in any conversation.

ii) Radial loop

Fig10.Radial Loop (radius toward the thumb)

People with radial loops on their finger tips are enthusiastic in their pursuit towards goals. They have ability to improvise a great deal. They can readily idealise and conceptualise. If the pattern is present on index finger, the person is more of individualistic than in crowd. He/she lives and learns better on his/her own rather than in crowd. This supports the fact that they are unable to adapt to new environment, people and situations. Unlike their ulnar partners, who are very much flexible in their perspective, people having radial loops find it hard to accept others'ideas. Also, they are not much planned about their course of action. Although, what makes them stand out in a crowd is their ability to lead others. Most of them have been found to be self-indulged. They easily get bored of doing or pursing same trade over a longer period of time. They like change of profession. They are more of adventurous kind of person and always feel the urge to satisfy their inner need of newness and change. Though, stability is not much of an issue.

D. **Whorl**

Fig 11. Composite Whorl

Whorls signify intensity of character and intelligence. Higher the number of whorls, stronger is the trait in the person. Also, whorl pattern combined with denser ridge counts between delta and core denote higher levels of understanding of corresponding cognitive abilities and human behaviour. Such people with above average perception of things tend to repel monotonous day-to-day office jobs and occupations that require labour without creativity. This kind of person loves jobs that involve dynamism, research, creation and not just some mundane administrative job. They are easy on taking up new challenges everyday which involves involvement of new team members, execution of ideas, non-conventional methods of prosecution of methodology etc. Such people are more oriented towards technical careers. They have been found to excel in fields of engineering or architecture. If this person has other types of patterns, preferably loops on ring and middle fingers, a taste in

artistic trends have been shown by them. Having a steady practical approach towards life, they do not tend to take life too easily. They remain productive in careers they aim for. People with number of whorls have also been found to be good orators. Their speech is most of time, politically correct. All whorl patterns distinguish from each other, person to person in the sense that more complex the pattern is, more complex is the behaviour of the person. Hence, tender care needs to be taken of individuals having such patterns.

Fig 12.Target/Concentric Whorl

i) Spiral whorl

Fig 13.Spiral Whorl

A spiral whorl is characterised circular patterns that are in spiral shape at core. This pattern does have two deltas at both corners. They have vibrant surging kind of personality with fantastic grasping ability. They can easily understand the concepts and whatever knowledge is imparted. But they easily get affected by emotional manipulation of others. When they decide upon one goal in life, they are very determined towards achieving it. They put utmost efforts into it. They have displayed strong sense of self consciousness and immense will power to win a competitive situation. Spiral whorl individuals are self-motivated and self-driven towards their ideas and passion. Parents must act accordingly and utilise this innate quality in them.

ii) Concentric Whorl

Fig 14. Concentric Whorl

The concentric whorl pattern is characterised by having concentric circles of ridge formations. It is one of the whorl patterns having strong expression of corresponding intellectual trait. Having sharp minds, such subjects show discipline towards achieving goals set early in their lives. Such subjects are conscious about their image amongst others in the social environment. They have a decent nature although, they are quite aggressive towards acquiring what they aim for. It can be somewhat said, that their self-conscious nature leads them to work tremendously hard in that direction. If this pattern is present on left thumb, then the person is very strict towards others. One has to request or beg for mercy from him/her. Such an individual lacks compassion and humanity. On the other hand, this pattern on right thumb shows that the subject is very precise about what wants in his professional life and works towards achieving it. They are not easily manipulated by others and remain very individualistic while pursuing their dream. They highly seek independence of thought and speech and are very straightforward when it comes to putting one's own thought amongst others. Since they do not tend to think twice before being vocal about what they think or perceive of others, they easily hurt people in the due course of action.

iii) Elongated whorl

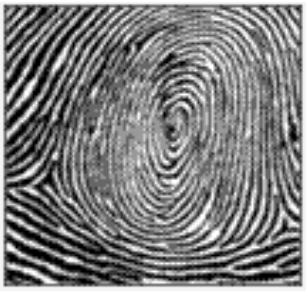

Fig 15.Elongated Whorl

Elongated whorl pattern is characterised by a long oval whorl flanked by two triradii on either sides. All other features of a whorl are also present in this type of pattern. They are highly focussed towards achieving the goal that they set for themselves. They take up goals too seriously and are quite aggressive and obstinate towards achieving them. Although they are of very decent nature, they are quite sincere towards their outlook towards others. They usually love doing multiple tasks all at one time, plan tasks in systematic manner and execute them well within time. They have immense ability to grasp goals and work towards the required direction. They have high emotional quotient hence, they get easily manipulated emotionally.Unfortunately, sometimes this leads them into indecision, where they are stuck up in between logical and emotional sides of matters. They are good at managerial skills where they love analysing and recruiting multidisciplinary aspects. They depend upon the art of deduction. Their ability to analyse a situation without getting biased or overly stated, make them prosper in careers related to judiciary. Their logical analytical skills are also well above average and hence they are good with numbers and calculations. However, they have a manipulative side to them. It is their inability to cope up maturely with past experiences of emotional nature. They are quite vulnerable to their emotional lives. They keep all good and worse memories and can hardly let go of sensitive issues. They can become easily affected by churning past memories again and again. On the outside, they despise getting second to anyone. Overly ambitious, competitive and hardworking are some of the positive traits that a person with elongated whorl carries with himself regarding the particular intelligence associated with the finger on which this print is present. However, researches have also found that if a spiral whorl is present, elongated in oval shape, the person develops some distinct behaviours other than those mentioned above. He/she becomes quite inadaptive of changing situations. Obstinacy might become a part of the personality.

iv) Imploding Whorl

Fig 16.Imploding Whorl

It is one of the rare fingerprint patterns. It seems like a Tai-Chi pattern at the centre or the core, surrounded by multiple circular layers of ridges. Since the symbol has two symmetric but oppositely oriented formations, the subjects having imploding whorls showcase dual mindedness. Although they are efficient enough to finish off two different tasks, simultaneously. They are much of individualistic, seldom mingle with others in order to execute some task or plan. But they undergo tough ordeal while deciding upon something. Hence, they are not much suitable for jobs that need quick decision making, like executive and administrative occupations. Although, adding another feather to the cap, people having imploding whorls are systemic thinkers. They can form systemic strategies. However, they are too worldly and materialistic. They seldom get affected by emotional ordeals of others. They do not hold idealism as one of their life path priorities. Hence, they are rarely the ones, who value morals and deep understanding and appreciation of life. They have also been found to lack open mindedness. They hardly keep into consideration other people's thoughts into their own course of action. On the other hand, they are highly self-conscious. They are not much of sentimental and lead life in a much practical, objective way.

v) Composite whorl / Double loop:

Fig 17.Double Loop, Resemblance to Yin-Yang symbol

Composite whorl or double loop is one of the rare fingerprint patterns. It is either present on thumb or at most, the index finger. About 10-15 percent people have composite whorl pattern [38]. Often resembling like the sign of Yin-Yang, this pattern derives characteristics of dual mindedness. People with such patterns on their finger tips are usually good at counselling others, facilitating their growth and achieving settlement. They have natural capability to judge fairly without any bias. Adding to unusual traits of such individuals, it has been observed that they have natural connection with abstract and spiritual dimensions. It may happen that some of them are "star people". They subconsciously choose careers that involve objectivity and judiciary. It has been studied and found that they possess deeper conscious and feel the connections of life after death with events. Psychic readers claim such people have their third eye opened wider than average. Although such individuals may or may not perform conventional rituals but they do have deep interest in spirituality. It may surpass the common social meaning and understanding of religion. They readily accept other cultures and races and may even end up having multicultural relationship. They have this understanding of prioritising things above materialistic success. For them, hollistic spiritual well being and inner conscious holds a higher place, showing a true realization of universe.However , such individuals do have some cons to their characteristics. Being dual minded, they

Fig 18. The Chi symbol

sometimes procastinate important decisions and events in their life. They easily get into self doubts and end up being in a state of ndecision. However, such traits have been readily linked to schizophrenia and split personality disorder by experts, but jumping to conclusion would prove to be a negative verdict. Composite whorls are patterns associated with higher psychic abilities and one should take intense care in handling subjects with such personalities. That is not all, such people are eager to gain knowledge on everything they can lay their hands on. They are good at communication with others but reveal personal expressions to only chosen few. They have very systematic and patterned thinking and tend to be very practical and objective when it comes to maintaning interpersonal correspondences. They overindulge themselves by thinking way too much and sometimes, lose grip on planned course of action at the end. If this pattern is found on thumb, such a person is deemed to be a good judge of personal matters with ability to set goal for himself. This pattern's presence on index finger signifies ability to fairly judge other people. Since middle finger denotes firmness in decision making related to career. If the pattern is present on little finger, it will represent bisexual orientation.

vi) Peacock'seye whorl :

Fig 19. Peacock Whorl

It is again, one of the rare whorl patterns that contains a peacock's eye shaped loop contained inside a whorl. The core consists of more than one spirals which are lined by a straight line at one of the corners. It somewhat looks like the pattern on a peacock's tail feathers. This pattern should be having one triradius on either the left or right side [39]. Some psychic readers consider this pattern to bring good luck upon the bearer. Along with having a discerning eye for matters requiring judgement,people with peacock eye whorl pattern have high degree of observational skills. They surpass others while in a competitive situation where there requires survival skills. They express themselves better, superiorly than others. Although it cannot be claimed that they are dominant beings. However, they have been found to possess outstanding leadership qualities. Hence, they are somewhat influential. They have high perception of things around them. Some of other characteristic features include very sharp mind, hunger to gain knowledge, highly creative ability, especially in artworks. It is rare to have peacock's eye whorl in any other finger than ring and little fingers. These fingers are known for memory power as well as linguistic abilities and observational abilities in left hand respectively. On the other hand, ring finger represents musical perception and creation as well as little finger denotes pictorial perception as well as pattern recognition skills. Another skill of people having peacock's eye whorl is that they have effective convincing powers. They become good counsellors. They are highly selective and maintain aesthetics in whatever they pursue.

Target centric ulnar peacock's eye (if print is of left hand) – Such a print signifies high perception than others, which indirectly denotes high intelligence. Such people also have good leadership skills. They have artistic bent of mind. They are highly focussed towards their aim in life. However, they are quite stubborn about their perspective and rarely consider other's advice or suggestions.

Spiral ulnar peacock's eye (if print is of left hand) – Such pattern signifies highly artistic abilities. They are more of passionate being, enthusiastic about what they do. They have commendable observational skills. They are mainly right brain biased person. Their creative intuitive abilities are highly enhanced.

Target centric radial peacock's eye (if print is of left hand) – Quite stubborn about what and how they think, people having peacock's eye whorl on fingers of their right hand, are highly competitive. For them nothing comes before life's goal on professional side. However, they hate to listen to others and take their suggestions. They are very self-driven.

Spiral radial peacock's eye (if print is on left hand) –Such people stand out in a crowd when it comes to deciding upon life's career choices. They feel bound to travel the path less travelled. They seldom follow trends in whatever they pursue. It is also the reason why they are highly creative and passionate. They are born to not within the conventional system of living. Their perception of matters of general interest also differs hugely from others.

vii) Accidental whorl/ Variant

Fig 20.Accidental Whorl or Variant

When a pattern cannot distinctly be able to categorise into any of above pattern types, consists a mix of two or more above discussed patterns like fusion of concentric whorl and inverted loop etc., it is claimed to be a variant pattern. They do not contain any plain arch or loop, be radial or ulnar. They do not include any conventional pattern. People with accidental patterns are different from others. They like to express themselves in ways

different from others. Sometimes they may hurt others in the process. But they do so out of no deliberation. However, this may create misunderstandings. Parents and teachers need to have more patience mingling with such individuals.

7. HOW THE COMBINATION OF PATTERNS AFFECT?

It is a matter of immense concern that what combination of patterns does an individual carry, as his/her blueprint to behaviour. If the whorl patterns are denoted by O, and arches are represented by W, due to the circular and wavy nature of the patterns, respectively. Although there can be 3^5 combinations of fingerprint patterns, loosely based upon all whorls categorised as one, both loops as a single category and both arch and tented arch patterns grouped into one category of arches, assuming that patterns under single category correspond to more or less similar kind of behaviour among humans [40].

i) Shape: OOOOO (all whorls)

A person having whorls on all his/her fingers is confident in nature. Such an individual has a strong character and influential personality. But it has been observed that they have high temperament. It can be very well concluded from such observation that with time and coming opportunities, this person has the potential to mend his life and fate dramatically. Although, it can be suggested that, incurring patience and calmness in his attitude shall prove beneficial.

ii) Shape: WWWWW (all waves)

Considering the fact that each pattern design is related to neocortical fold makeup and neural circuitry, an individual possessing such a combination is straightforward in social interactions. He/she is most likely to be honest in his pursuit. Although, they have been observed to be very sensitive towards arts and crafts that includes creation. This suggests that such people should pursue such passion and knack for fine arts as career. They are quite introvert and shy in nature. They find it tough to mingle easily with others, rarely expressing themselves. They also are unable to conduct tasks that involve supervision and management of team under their leadership.

viii) Shape: OWWWO

Individuals having such a combination of prints on their fingers succeed in their professional life. They tend to get into jobs that are highly valued for and well-acknowledged. However, they should be careful to not get into any kind of hustle because they tend to take things for granted. They tend to keep an air around themselves which may offend colleagues. They easily attract jealousy from people and their pride may let them get betrayed. People of such nature are counselled to treat their counterparts with respect. They must avoid getting into petty issues.

ix) Shape: OWWOW

People with this combination of fingerprint patterns need to put lots of efforts into their professional matters. They are observed to get recognition for their hard work at the prime of their ages. They certainly will have struggling initial years into their jobs. But they must keep patience because they gain wealth with age.

x) Shape: OWOWW

These people tend to easily get judgemental about others. As a result they can find it hard to accept others as they are and perceive things in a narrow minded way. They must learn to be humble and generous. This negative attitude can interfere in the way of holistic well-being of their personal as well as professional lives. It will also mean being considerate to others which will indirectly help them to scale the ladder of success, especially if they are involved in executive and administrative careers.

xi) Shape: WOOOO

A persona having arches on his/her thumb and remaining all whorls is a very sharp and clear headed person. They can attain success in life only when they work towards the aim, rather than leaving it all upon fate. They have respect of their associates who will support his/her pursuits. It may be because of the fact that a person having such fingerprint patterns is a kind, compassionate humanitarian being.

xii) Shape: OOOOW

People with such a sequence of fingerprint patterns are very soft hearted. They easily get attached to elderly. They are kind and caring. Hence, they prove good associates to old aged people. However, they have trouble trusting people easily which may come in between their paths of success. Still they have been found to make a decent, well-acknowledged living for themselves. They need to get out of their shell and be little less conservative.

xiii) Shape: OOOWW

Individuals with such pattern sequence need to be cautious of their behaviour of jumping to conclusions too early. They also need to control their temperament and check that they do not easily loose temper. This behaviour might land them up in trouble. This is the only challenge they face towards making big of themselves. They are of high potential and must channelize their energy tactfully, by approaching a situation in a calm manner.

xiv) Shape: OWWWW

Subjects with whorl only on thumb and arches on remaining all fingers are of good and firm character. They need to put huge effort towards their professional growth. However, they are suggested to keep patience as their efforts will turn into success only after a certain age.

xv) Shape: WOWWW

These individuals have one special characteristic. They are quite remarkable at social skills. They do not hesitate taking risks in situations that involve their career. They are confident by themselves and face challenges knowingly. However, not every situation is as yielding as the fortunate ones. Hence, it is advised to such subjects that they try taking lesser risks as they mature in life. They should consider options that are more stable.

xvi) Shape: WWOWW

People having this kind of pattern sequence are little different than their same age counterparts. For them life holds deeper meanings and greater visions. Such people are great visionary but can often loose grip on reality. They are not much of practical and hence may invite trouble for themselves, leading a dreamy life. They need to realize that this great potential that they have been endowed with, also hands them great responsibility towards others.

xvii) Shape: WWWOW

People having arches on all four fingers except on ring finger which has a whorl are a huge success at academic fields. Usually, they are of high intellect and easily make themselves renowned as scholars. They lead a smooth decent living and earn moderately handsome amount of wealth. They have the potential to hugely succeed from their academic intellect.

xviii) Shape: WWWWO

These people have the stars to inherit property from some senior member of his/her family or closed acquaintances. They too can make profitable career for themselves and succeed in life. However, their only stone in the path is their impatient nature. This might lead them into many unwanted hustles both in professional and personal lives. They need to train themselves to be little less impatient with people and situations around themselves so that they can obtain better results.

xix) Shape: OOWWW

Such people are arrogant and proud. They may appear tough at outside, dealing with people around them. To understand them deeply, needs great patience and perseverance. It has been observed that deep inside, they are kind hearted beings. They do not find it easy to mingle with other people and they need to put effort in that direction. Also, this snob nature may land them up in some trouble as their relatives may make the most of this particular weakness of theirs.

xx) Shape: WOWWO

Such individuals are very responsible and thoughtful about their own lives from a young age. They know what they want to do further in their lives. On an average, they lead peaceful contented lives. They are deep thinkers and do not take anything very lightly.

xxi) Shape: WOWOO

People with this combination of fingerprint patterns are very outgoing and extrovert in nature. They have high interpersonal intelligence and are much carefree when it comes to enjoying life with same aged people. As they reach the prime of their ages, they crave for emotional dependency on others as their whole emotional make up is based upon people from very young age. They need to make a stable career for themselves so that they need not get vulnerable at very old age.

xxii) Shape: WOWOW

They usually are rebellious in nature, when it comes to ideology or thought on how to pursue something. They go the way which is most unconventional. Also, they are obstinate in nature and very hard to talk into something. However, their high confidence in themselves, coupled with good amount of confidence. Although, it is a matter of bigger concern that things such a person want from life, mostly turn out to be vague and abstract.

xxiii) Shape: WWOWO

Such an individual needs to be much patient with his life because it has been observed that he/she shall have alternate events of success and failures in life. Although, it can all can be overcome by using more of other abilities with steadiness and patience. This will pay off and the person matures enough to handle issues tactfully.

xxiv) Shape: WWWOO

This combination of fingerprint patterns appearing in mentioned sequence represents a very kind hearted, compassionate person. He/she has above average interpersonal intelligence and is jovial around people. They must get into business that includes marketing, counselling, PR etc. because they are one of the few having charismatic personalities. They need to focus and work towards their aim in life. This will reap them huge success.

xxv) Shape: OWWOO

Another class of print patterns is the above mentioned one. People having this combination reach summit of career in the mid of their lives. However, they need to work hard during initial years to enjoy the perks later in life.

xxvi) Shape: WWOOW

The people having this combination of patterns lack the ability to judge correctly without bias or prejudice. They are very potential but do not have the ability to focus on goal for long. This is the only weakness they have. They need to have self-control on whatever they want to pursue in life.

xxvii) Shape: OWOOW

Having a character that is commendable, these people are very popular among counterparts because they have this innate quality and will to help everyone out there. They are caring in nature. They are highly sensitive to people, their situations and emotions. They can understand and read people without talked into the matter. Also, they are highly creative and make reputable names for themselves in related careers.

xxviii) Shape: OWOWO

This kind of individual has a sharp mind with fast decision making and task execution ability. They are very quick to respond. As a result, sometimes due to lack of patience they may get quite aggressive. This aggression can act against them as far as interpersonal interactions are concerned. If they however overcome this particular stance, they can soar up above in their professional growth.

xxix) Shape: WWOOO

This kind of person lacks art of presenting things in social circuit. He/she may also get superficial while interacting with others. However, they are straightforward in their behaviour for others. People may not accept their naïve views because they might take it up as shallow. They should not be surprised by this behaviour of others towards them. They also need to work hard upon their communication and oratory skills if they are involved in related occupations.

xxx) Shape: OOWOW

These individuals have high cognition. They are opportunists. They grab any chance coming their way. They can excel in filed relating to stocks, investments and finance. Their fortune increases with age. They need to nurture this speciality of theirs. It is quite uncommon.

xxxi) Shape: OOWWO

A person having the above mentioned combination of patterns in this sequence is a person of strong character. He/she is highly honest with himself as well as others. This also sets up their reputation amongst others. However, for them materialistic and monetary wealth matters. They need to be cautious getting betrayed in business or conned by others they trust. They need to be more diplomatic.

xxxii) Shape: OOOWO

They have enhanced interpersonal intelligence and social skills. They easily get help from influential people because of their jovial nature towards people. They however, look into others for guidance rather than looking into themselves. However, their association with people of importance aides in getting up the ladder of success. After a certain age they flourish in their prospective careers.

xxxiii) Shape: OOWOO

A person having this sequence of patterns is of courageous nature. He/she is hardworking towards whatever task they are assigned to. They do have chances of making others envious or rival to them. Although it can be overcome if he/she works in this prospect and maintain harmony among others. They need to accept the fact that companionship of others are necessary as one moves further ahead in life. They need to take mature step towards this prospect with help of some counselling.

xxxiv) Shape: OWOOO

This type of person is very kind and humanitarian. They are easy to mingle with and maintain good rapport among friends. However, they lack the skills required for doing business and understanding the twists and turns of commercial sector. They are highly inclined towards academics and acquiring knowledge. However, due to their enhanced inner conscience and jovial attitude towards life, they succeed at being good teachers or scholars. They can also be spiritual masters as they have enhanced understanding of existence, purpose of life and values, morals and meanings of life.

xxxv) Shape: WOOWW

The people having above mentioned combination of patterns in perfect sequence are quite reputable in their circles. They have strong yet nonintrusive character. They make peace with themselves and others out there. But they may get into small issues due to their pride. Unconsciously, they may hurt others, especially those whom are in important positions in his/her lives.

xxxvi) Shape: WOOWO

People with this sequence are logical beings. They are practical in outlook. Yet they are quite simple in their take on matters related to day-to-day life. However, they lack a basic issue. They do not focus on fundamentals of whatever they pursue. This highlights their impatient nature. They need to overcome this hurdle to rise up the success ladder. They are destined to earn monetary wealth and earn respect from people.

xxxvii) Shape: WOOOW

This class of people are very straightforward when it comes to putting their views on some matter before others. They have steady and strong character. They too have the chances of offending the wrong kind of people due to this straight forward nature. However, by the prime of their age they rise up the success ladder to important position. Then only they face positive changes in their professional life.

8. CONCLUSION

The theory of multiple intelligence has grabbed the attention of researchers and people from every walk of life, all over the world. The role multiple intelligence plays in categorising people with highly developed intelligence into the profession that suits their innate potentials. The schools are the most benefitted. Hundreds of educational institutes all over the world have adapted a screening method based on a child's fingerprints. It guides the faculty to teach the subject in a manner he/she has been created with. Also, if it becomes known that which career prospect is most suitable for a child according to his/her prominent innate intelligence, then it becomes easier for the child to pursue such career path which in most cases, also turns out to be rewarding. Also, in most of the cases of adults, who are helplessly stuck in jobs that they are unable to relate with, dermatoglyphics is their key to recognise their inherent potentials. It helps enterprises to hire only those who are best suitable for the job. The unnecessary pressure an individual goes through while building a career out of something he/she is not made for, can be averted. Also, people with disabilities can delve into jobs that they are skilled of, from birth. The study of dermatoglyphics can be briefly summarized in the following points.

1. The neural correlates to the various types of intelligences and personality types have a profound connectionwith specific areas of human brain.
2. The Neocortex is the connection between two differently functional brain halves. The left and right brain halves are not completely isolated from each other and so does the logical intelligence not remain unaffected from the emotional intelligence quotient and vice versa.
3. The fingerprints are the way to understand how our brain is wired up since our births.
4. People can be counselled regarding their behavioural characteristics, inherent potentials, skills and knack.

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