

Creating a Comprehensive Profile by Integrating the Adapted Hermann Scale, Genogram Technique and Biorhythm Programme: A Case Study

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Abstract:

The current study aims to uncover and analyse the problems of individuals as part of our efforts to optimise human resources and align education with global developments. This is achieved by addressing learners' needs, enhancing their skills and identifying their problems. Various techniques and tools help to diagnose these problems, including the genogram, which is an essential tool in psychological diagnosis. It helps to understand a student's history and interactions with family members and related systems. The genogram enables counsellors to make accurate diagnoses and identify family relationships that influence a student's success or failure. In addition, the Biorhythm Program is used in education for its scientific contributions, particularly in measuring cycles and determining optimal learning times, thus facilitating the work of educational supervisors. Finally, the Hermann Scale measures a learner's thinking approach and style, with each type corresponding to specific cognitive functions. Some people may tend towards analysis, numbers and finance, while others may focus on creativity, synthesis and strategies; some may prioritise discipline, execution, precision and punctuality, while others may emphasise human meanings, relationships and emotions.

Keywords: diagnosis; genogram tool; Hermann scale; biorhythm

Introduction

Education today emphasises the importance of thinking in general, and creative thinking in particular, as a primary objective of its overall goals. To this end, many schools have adopted curricula aimed at developing students' creative thinking, which is the only path to progress and advancement in the current era, where success is measured by the quality of its educated, superior and creative human resources, rather than by its natural wealth.

Therefore, it has become essential to pay attention to learners and to meet their various needs, helping them to solve their psychological, educational and family problems that may affect their academic success and excellence. The family, like other social institutions, has been affected by the changes and transformations taking place in today's world. These changes include the entry of women into the workforce, the emergence of nuclear families, the increased education of women and the adoption of new values that were not previously present. As a result, relationships between family members have been affected, roles have diminished and family problems have increased, which can hinder the academic success of their school-age children.

This situation requires that educational institutions pay attention to such family problems that may affect the emotional and mental state of the students and hinder their academic journey. They need to seek tools and techniques to address these family problems, including the adapted Hermann Scale, the genogram technique and the biorhythm programme.

1. Problem Statement

In order to keep pace with the demands of the modern age and the scientific and technological advances being made around the world, society needs to focus on the education that is now required to prepare a generation of knowledge producers and innovators. It must meet the needs of all learners, regardless of their intellectual, social, emotional and pedagogical capacities. On the one hand, it is essential to consider the role of the teacher as a fundamental factor in improving the effectiveness of the educational process. As one of the key elements of the educational system, the role of the teacher in preparing young people to engage in today's world requires them to

act as a mediator between students and knowledge. They should cultivate initiative and independence in their students, helping them to acquire information and to use different means and tools to access it.

The teacher's role as an educational guide helps students to develop their abilities and potential, to discover their competences and to identify areas of activity in which they can excel, in line with their true motivations. In order to successfully help students to solve their problems, teachers need to consult specialists in the field. In educational institutions, guidance counsellors are responsible for providing various educational, psychological and social services to students. They also work to diagnose students' problems and work with the educational team to find solutions.

Among these issues are familial problems that may affect a student's performance. This necessitates that teachers and guidance counselors identify these factors precisely. Achieving this requires objective tools and techniques that clarify the student's position, familial relationships, and their impact on academic performance.

One such tool is the genogram, which is designed for assessment when working with families or addressing individual issues stemming from familial problems that require intervention. It assists specialists in gathering information by identifying significant events in an individual's life course and highlighting social problems, emotional relationships, and conflicts among family members, presented diagrammatically through shapes and symbols that delineate the nature of the disturbances.

Numerous studies have explored the genogram in psychological, medical, and social contexts. Our study will focus on specific research that has utilized this tool to uncover school-related issues. Notable examples include:

1. Bouthlaja Mokhtar (2016): His study titled "The Distinctive Familial Characteristics of Children Suffering from School Phobia" was conducted within the school health system in Sétif. The study employed family interviews, genograms, family maps, and drawings, based on a sample of three cases of families with these children (two boys and one girl). The findings indicated that the families of children with school phobia exhibited unclear boundaries and disrespect for hierarchical rules, with family members failing to fulfill their familial roles.

2. Mohamed Qamari (2014): In his study titled "The Genogram as a Tool for Studying and Treating Cases of Violence Among Children", he explained that the concept of genogram is a graphical representation of a particular family that displays detailed data about the relationships between individuals over two or three generations. It goes beyond the traditional family structure and allows users to analyse prevailing trends within the family and the psychological factors that influence relationships. It also enables therapists to understand and identify dominant behaviours within the family that may be affecting the current situation of children with violent tendencies or those with psychological or behavioural disorders.

In Ben Qoua Jamila's (2018) study entitled "Quantifying Qualitative Data Using the Genogram: A Comparative Study Between Underperforming and High-Performing Students in Mostaganem", the research revealed the differences between the two samples and the factors contributing to the two phenomena. The genogram showed that among the factors leading to academic success, most cases did not suffer from chronic illnesses or psychological problems; rather, they enjoyed good health. Psychologically, they had strong personalities, self-confidence and perseverance. Cognitively, they showed intelligence, attention, concentration and strong memory. The family environment was characterised by close relationships between its members, with parental support and encouragement.

Conversely, underachieving pupils were in relatively poor health and showed deficits in cognitive processes. The relational dynamics within the family had a particular impact on the children in particular and the family in general. The results of the study confirmed that there were differences between low and high achieving students in terms of emotional relationships within the family.

The elements included in the 'genogram' serve as a family map that outlines the family structure, highlights its history by focusing on key people and significant events to identify vulnerabilities, traumatic events and secrets, and describes the evolving relationships. The study emphasised that the primary objectives of the 'genogram' are to identify the individual's history, determine the nature of the dysfunctions and difficulties, uncover the individual's resources and potential, and understand the family dynamics. The results showed that an aimless personality type contributes to an increase in aggression and a tendency to retaliatory behaviour.

Among the other diagnostic tools that help the psychological counselor identify the thinking patterns of learners and their corresponding brain dominance learning styles, according to "Hermann's Theory," are extremely

important for curriculum designers, educators, and the learners themselves. This understanding contributes to the reconstruction of these curricula and the selection of content and topics, teaching methods, and resources tailored to the diverse learning styles of students (Belkird, 2017: 3).

These tools also assist teachers in recognizing their students' thinking patterns, enabling them to develop and practice these patterns according to the learning strategies proposed by the instructor, corresponding to each thinking style. Hermann (1989), as cited in Nawafleh (2008: 45), noted that "students with external learning style A (upper left) respond to lectures through direct presentation, those with procedural learning style B (lower left) respond to hands-on practice, those with interactive learning style C (lower right) respond to cooperative learning through interaction, and those with internal learning style D (upper right) respond to visual presentations."

Regarding the biorhythm program, psychologists and educators have focused on this electronic program to determine an individual's biorhythm state by identifying the major rhythmic cycles (mental rhythm state, emotional rhythm state, physical rhythm state). The concept of biorhythm is broad, and understanding it requires exploring how it occurs and how it is measured. Each rhythmic cycle must be understood as it influences individual behavior and psychological activity. The educational field is particularly fertile for applying biorhythms, given the scientific services it provides through measuring cycles and identifying optimal learning times, thus facilitating the work of educational supervisors.

Peter West describes biorhythms as continuous physiological changes that evolve and recur in an endless series of cycles until death. These rhythms can be measured in our bodies and awareness of them is crucial for individuals to plan their lives more positively.

Runberg (1979-1993) argues that all functions change according to predictable rhythms of time and date, alternating between increases and decreases in activity, including psychological and biological rhythms.

Alfred Teltcher, in his study of the cognitive performance of a number of students, examined the nature of this performance in terms of cognitive rhythms, similar to those found in physical and emotional rhythms. He analysed the results of individuals in his sample and concluded that cognitive rhythms last about 33 days each. He deduced that the brain's ability to absorb, process and express new ideas operates at a rhythm that corresponds to the emotional and biological-physical rhythms in the human body. He clarified that an individual's mental alertness and cognitive abilities function rhythmically, enabling them to interact with, recognise and retrieve information and develop cognitive skills. This mental alertness is influenced by biological clocks within the individual.

The mental bio-rhythm determines when cognitive abilities and skills are in a positive cycle for the efficient acquisition and use of knowledge, and when they are in a negative cycle where the individual recalls and perfects previously learned material without incorporating new learning. Thus, goal setting in the cognitive domain involves planning content and substance and establishing the appropriate timing for learning (Alilch, 2016: 258).

From this perspective, we ask the following questions:

1. Is the genogram tool suitable for diagnosing different learning conditions in the educational process, and how can it be used?
2. According to Herman's Brain Dominance Theory, what is the dominant thinking style among learners?
3. Do biorhythmic conditions vary between learners?

2. Hypotheses

To answer these sub-questions, we propose the following hypotheses:

1. The genogram tool is suitable for diagnosing different learner conditions within the educational process and it can be used to identify learners' abilities and characteristics.
2. The dominant thinking style among learners, according to Hermann's Brain Dominance Theory, is style A.
3. The bio-rhythmic conditions of learners differ according to the major bio-rhythmic cycles.

3. Importance of the study

The importance of this topic lies in the fact that it explores diagnostic techniques and tools that are essential in revealing many of the problems faced by learners. The importance can be summarised as follows

- To clarify the importance of the genogram tool in the educational context.
- To make teachers and guidance counsellors aware of the importance of family relationships in students' lives and of the need to use the genogram, Hermann's scale and the biorhythmic programme in diagnosing problems.

4. Aims of the study

The aims of this study are:

- To use the “genogram” tool to assess learners’ cases by the counsellor.
- Identify the dominant thinking style among learners according to Herman’s Brain Dominance Theory.
- Reveal the state of the learners’ bio-rhythms.

5. Operational definitions of learning concepts

- **Diagnosis:** The process of uncovering emotional relationships, social problems and disorders across three generations using the genogram tool.
- **Genogram:** A widely used assessment and diagnostic tool in family work, based on general systems theory and ecological systems.
- **Thinking styles:** The preferred methods and approaches individuals use to use their abilities, acquire knowledge, organise and express their thoughts.
- **Brain Dominance Scale:** A tool for measuring the degree of each of the four thinking styles proposed by Hermann, determined by the extent to which the subject identifies with each style. The Hermann scale was adapted to the Algerian context by (Ad Qamari Muhammad and Dr Belkird Muhammad, 2016).
- **Bio-rhythms:** The regular biological changes during which an individual’s physical, mental and emotional activity increases or decreases. This study focuses on the major bio-rhythmic cycles within the individual (mental, emotional, and physical) represented by positive, negative, and critical states.

1. The concept of the genogram:

The emergence of the genogram as a data collection technique or intervention method has been influenced by the work of various researchers over the years, such as Bowen Murray in his work with families of people with schizophrenia, Ivan Bozor and Mouni Naji. These researchers discussed the influence of previous generations on the emergence of symptoms in a particular generation, referred to as ‘Lomar’ and ‘Arund’, highlighting the importance of vertical relational dynamics within the family (Bouthlaga, 2016: 125).

Some definitions of the genogram include:

- According to the Dictionary of Social Work, the genogram (family diagram) is defined as: “A descriptive diagram used to trace the extension of family relationships over at least three generations” (Al-Dakheel, 2006: 114).
- **Alaa El-Din Kafafi defined the family map (genogram) as:** “A map that organises data about the family over three generations and presents it on a single visible page. This map helps school workers to identify intergenerational patterns, family roles, birth order positions, significant triangles, and the timing of important events in family life, all in a precise and concise examination” (Kafafi, 2006: 301).
- **Mohamed Qamari describes it as:** “A graphical representation of a specific family that displays detailed data about the relationships between individuals and includes family extensions over two or three generations. It goes beyond the traditional family structure by allowing the user to analyse prevailing trends within the family and the psychological factors that shape these relationships. It also allows the therapist to understand and identify dominant behaviours within the family that may affect the current situation of children, which may be characterised by violence or psychological or behavioural disorders’ (Musli, 2016: 6).

He also defined it as a diagram that includes many elements related to the individual within the family and across the generations that make up that family. To create this diagram, we rely on the ‘Genopro’ programme, which summarises the individual’s characteristics and relationships in an easy-to-read graphical representation. This allows us to discover the individual’s life path and history, including their successes and failures, to identify family precedents, and to determine the nature of disruptions, conflicts, difficulties, and disorders, as well as to uncover the individual’s resources, potentials, and coping strategies (Qamari, 2014: 14).

1.2 Importance of the genogram:

The importance of the genogram lies in the following aspects:

- Collecting and organising comprehensive and significant information about at least three generations of the family.

- Understanding dysfunctions that occurred between previous generations, such as the impact of alcohol abuse on the current family.
- Identify critical turning points in the family, such as dates of birth, death, marriage and divorce.
- Identify the cultural, ethnic and religious characteristics of the family and its social and economic status.
- Determining the nature of communication within the family (Al-Izza, 2000, p. 86).
- The genogram map enables the psychological and educational counsellor in schools and parents in families to view symptoms in a broader, more fundamental context that includes social history (Kafafi, 2006, p. 301).

1.3 Aims of the genogram:

The genogram has several aims, which can be summarised as follows:

- To learn about the individual's history in order to identify the nature of the dysfunction or problem, to understand the difficulties they face and to reveal their potentials and abilities, as well as to understand the family dynamics. In clinical cases, it aims to diagnose and suggest treatment methods.
- The genogram is one of the tools designed for verification and supportive exploration, particularly when dealing with individual issues arising from family problems that require intervention to confront them.
- It attempts to provide a description of the internal structure of the family, its members, the nature of the relationships between them and related factors over one or more generations through a diagram resembling a family tree. It helps to understand the history of the case, whether individual or family, and its interactions with family members and the environment.
- The genogram helps to determine the position of each family member, their relationships and dynamic interactions through a set of internal relationships that link members of the same family, as well as relationships with members of related families over one to three preceding generations (Ala, p. 56).

1.4 Components of the Genogram

The genogram tool consists of:

- Shapes:

Shapes are created by connecting symbols and lines to represent a particular situation or existing relationship. The nature of the situation described varies; there may be one shape representing a single family or shapes that encompass multiple families with interconnected relationships. Typically, the network of family relationships begins simply and becomes more complex over time. As information becomes available and develops, it helps the practitioner to represent the client's system under study, reflecting the evolution of the situation and leading to assessment and appropriate intervention (Al-Najim, 2010: 5).

- Symbols:

The family relationship network contains a large number of symbols, each of which represents something specific. For example, a circle represents a female, a square a male and a triangle a pregnant person. The meaning of a symbol can change if certain lines are added or if it is connected in a different way. Initially, when the family relationship networks were first adopted, the symbols were limited, but as they were applied, it became clear that there were numerous relationships and behaviours, especially in different cultural contexts, leading to significant evolution. Researchers have added new symbols to represent existing family situations in our Arab societies, including symbols to describe breastfeeding relationships.

- Lines:

The network of family relationships includes many lines that represent the connections between family members and take different forms. They can range from simple straight lines to intertwined and overlapping lines indicating complex and intertwined relationships. There are arrows, dots and dashed lines, each describing a particular relationship. The use of these lines varies according to what they represent; some lines indicate family relationships, while others represent emotional connections.

Family relationships:

Family relationships are described by different types of lines. As the family relationship network has evolved, the number of line types describing different forms of family relationships has increased, with approximately 22 forms now available to represent these relationships. Given the existence of marital relationships, which are distinct from family relationships, the researcher has proposed a shape to describe polygamous relationships, as

illustrated in Figure 2, which shows some of the line shapes representing family relationships within the family network.

Emotional relationships:

In addition to the lines that describe family relationships, there are also lines that describe emotional relationships that connect one or more people, whether they are family members, friends, colleagues or others. These lines can describe ongoing relationships, broken relationships, weak relationships, conflicted relationships, or relationships where there is violence between the parties or one against the other. There are about 23 types of lines that describe different types of emotional relationships between people.

2. Brain dominance according to Hermann's theory:

2.1 Brain Dominance:

Torrance (1982) defined brain dominance as an individual's tendency to rely more on one hemisphere than the other in learning and thinking, reflecting their learning and thinking styles. Salah et al. (1982: 117) defined brain dominance as "the use of either the left or right cerebral hemisphere, or both, in mental processes or behaviour". The left hemisphere is involved in analysing thoughts, particularly those related to language, speech, logic and mathematics, while the right hemisphere is associated with music, art, emotional responses, intuition, imagination and imagery.

2.2 Theoretical background of Hermann's theory:

The human brain is one of the most complex systems in the universe, containing an astonishing number of neurons in excess of tens of billions. Each neuron acts as a chemical-electronic factory, involving thousands of types of substances and auxiliary enzymes, and carrying out a vast number of chemical reactions. The brain performs a wide range of tasks, from regulating involuntary actions such as breathing, heartbeat, body temperature and digestion, to maintaining balance, perception, thought, emotion, memory, imagination and creativity.

One of the most famous theories dealing with the division of the brain is McLean's theory, which in the 1970s divided the brain into three types: the reptilian brain (which includes biological needs such as food, safety and reproduction), the mammalian brain (which includes emotions, social skills and sensory experiences) and the human brain (which includes thinking, perception and learning).

Picture



Figure 01: Illustration of the brain according to MacLean's theory.

Roger Sperry's theory divided the brain into right and left hemispheres, each with a specific function. He was awarded the Nobel Prize in 1960 for this discovery

Picture

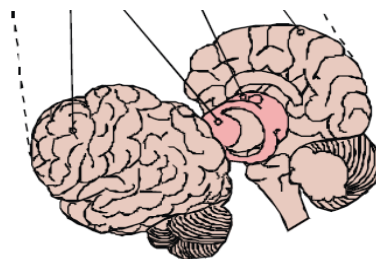


Figure 02: Illustration of the brain according to Roger Sperry's theory.

Hermann integrated Sperry's and MacLean's models into a single framework known as Hermann's Four Quadrant Model, which is the basis of his theory.

Picture

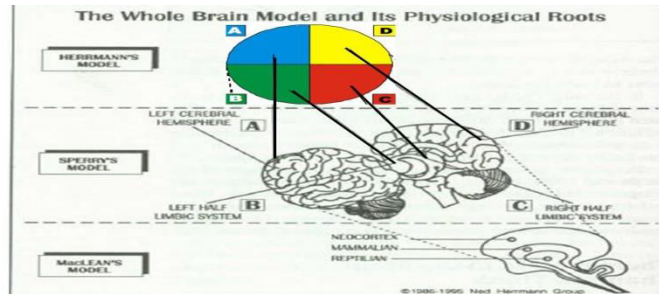


Figure 03: Illustration of the brain according to Hermann's theory.

2.3 Hermann's divisions: (Belkird, 2016: 93)

According to Hermann's Thinking Scale, the brain is symbolically divided into four types or forms, each specialising in specific mental functions. The four sections are:



Figure 03: Illustrates Hermann's divisions.

Type A:

- Logical: I have the ability to interpret events logically.
- Rational: I make my decisions rationally, away from emotions.
- Factual: I prefer to deal with facts rather than uncertainties.
- Realistic: I focus on the moment I am living in, away from imagination.
- Analytical: When faced with a problem, I analyse it and determine its cause in order to find an appropriate solution.
- Conscious: When I have to make an important decision, I think carefully, examine the problem and analyse it.
- Precise: I tend to be precise in even the simplest matters.
- Critical: I do not hesitate to criticise irrational ideas.
- Technical: I find it easy to use technical equipment, even if it is complicated.
- Financial: I spend my money only on essentials.
- Mathematical: I like to study mathematics.
- Justifying: I try to explain every phenomenon and understand its causes.
- Strict: I believe that laws must be obeyed and that every transgressor should be punished.
- Theoretical: I rely on the theoretical aspect of lessons to understand them well.
- Emotionally limited: I believe that studying is much more important than feelings and emotions.
- Concentrated: I maintain my concentration for a long time while reviewing my lessons.
- Numerical: I enjoy working with numbers and establishing numerical relationships.

Style B:

- Sequential: I do not move from one stage to another until I have completed the previous stage.
- Organised: I keep my belongings and tools organised.
- Tidy: I enjoy arranging things.
- Detailed: I am not satisfied with the general idea of an issue; I pay attention to every detail.
- Planned: I do not start any work or activity without a precise plan.
- Procedural: I adhere to procedures and follow the specific steps for completing tasks.
- Self-controlled: I can control and manage my feelings about others.
- Conservative: I prefer to solve problems using known methods rather than looking for new ways.
- Law-abiding: I respect the internal rules of the school.
- Structured: I prefer issues where instructions are clearly defined, rather than relying on personal judgement.
- Cautious: I consider the consequences before taking action.
- Punctual: I respect deadlines and ensure that I complete my tasks on time.
- Executive: I complete all my school work to the best of my ability.
- Disciplined: My peers describe me as disciplined both in and out of the classroom.
- Reliable: Teachers rely on me and trust my ability to complete my assignments.
- Resolute: I do not skip classes unless absolutely necessary.
- Guided: When I buy a new device, I read the manual and follow the instructions.

Style C:

- Collaborative: I enjoy working with others and cooperating towards a common goal.
- Emotional: I cannot hide my feelings from others.
- Social: I make and maintain friendships quickly.
- Metaphorical: I use figurative language to express my ideas.
- Artistic: I wish the school would increase the hours of art and music classes.
- Spiritual: I care more about values and spiritual aspects than material things.
- Expressive: I like to share my thoughts and feelings with others.
- Empathetic: I listen to others' perspectives and understand and respect their feelings.
- People-oriented: I enjoy helping my classmates and giving them my time and effort.
- Verbal: My peers say I speak well and my words are clear and effective.
- Reader: I enjoy reading and learning.
- Writer: I express my thoughts and feelings in writing, such as poems, reflections and journals.
- Team-oriented: I prefer group work to individual work.
- Sociable: I like to spend as much time as possible with my classmates rather than being alone.
- Sensitive: I feel very uncomfortable if I upset one of my friends.
- Kinesthetic: I prefer to use movement and my senses when learning.
- Symbolic: I use symbolic language, such as hand gestures or facial cues.

Style D:

- Visual: Images and drawings help me understand lessons.
- Holistic: I seek a complete understanding of topics without focusing on details.
- Innovative: I can come up with new and creative ideas and methods.
- Imaginative: I rely on my imagination and daydreaming to solve my problems.
- Integrative: I can combine different partial ideas into one unified concept.
- Conceptual: I can generate new ideas based on lived experiences.
- Synthetic: I can assemble separate ideas and concepts to create something new.
- Simultaneous: I accomplish more than one task at the same time.
- Intuitive: I judge things based on intuition rather than logical analysis.
- Self-explorer: I seek to discover new information on my own.
- Proactive: I take the initiative to complete my work and assignments without waiting for others' instructions.
- Creative: I have unconventional ideas and can assemble things in unusual ways.
- Adventurous: I am attracted to adventure and willing to take risks.
- Playful: I have a sense of humor that sometimes gets me into trouble.

- Renewable: Routine bores me, and I always love change.
- Unconstrained: I dislike laws and regulations, feeling they restrict me.
- Impulsive: I make decisions quickly without considering the consequences.

3. Biorhythm

3.1 Definition of biorhythm:

- **Language:** The term is a combination of two Greek words: “bio” meaning life and “rhythm” meaning periodic repetition. It is the science that studies the biological cycles characteristic of all living organisms (Shalabi, 2000: 182). Today, it is known as chronobiology, a new field that originally focused on plants and animals and gradually shifted to human daily rhythms, especially in adults, in an attempt to determine daily biological fluctuations based on several factors such as sleep-wake cycles, temperature curves, and hormone secretions (Abdulaziz, 2006: 31). Biorhythm refers to the regular succession of certain events that affect physiological functions (heartbeat, sleep, menstrual cycles) and cosmic rhythms (the cycle of day and night, the four seasons). Each individual has his or her own rhythm based on his or her mood and upbringing in a society, and this rhythm is acquired from birth through education. All human activities (school, work, leisure) are subject to a rhythm that gives each person a unique character (Norbert, 1999: 234).

It can also be defined as a recurring periodic state of active and inactive periods, such as the speed of reaction, certain tensions in psychological phenomena, and patterns such as heart rhythms, which express regular physiological phenomena through typical and habitual electromagnetic signals (Larousse: 821).

Terminology:

The concept of biorhythm was first used by the ancient Greeks, who called it *rhythmos*, meaning regulated flow. They derived this concept from the regular and continuous movement of ocean waves (Bastawisi, 1996: 45). It represents the interactions that occur in human life through contact with the external environment, resulting from physiological interactions generated within the body and related to the regulation of hormone secretion (Abdul Sattar & Rzouki, 2008: 187).

3.2 Physiological mechanism of biorhythm:

Many functions and elements of our body, such as temperature, respiration, digestion and hormone concentration, go through daily cycles of highs and lows, known as circadian rhythms (Alilsh, 2016).

These rhythms are thought to be controlled by about 10,000 neurons in a very small area of the brain called the limbic system. The timing of these cycles is determined by the brain’s exposure to daylight. One of these rhythms regulates our ability to focus on incoming information, which can be called the cognitive-psychological cycle. This aspect has attracted the attention of some researchers studying the sleep-wake cycles of students (Abdullah, 2005: 212).

Experiments on 20 patients with varying degrees of personality disorder confirmed this. The scientists examined blood samples taken from the same individual at 20-minute intervals over a 24-hour period. The results showed differences in hormone levels and organic secretions in the blood, which tended to equalise when tested at a specific time each day (Alilsh, 2016: 40).

From these findings, the existence of a biological clock was established, consisting of small neural groups in the brain that control the body’s secretions. Scientists identified a specific area in the hypothalamus (the visual hypothalamus) as responsible for the biological clock, known as the suprachiasmatic nucleus (Noyau supra chiasmatic) (Ben Younes, 2002: 180).

3.3 Types of daily biorhythms:

Human physical performance varies throughout the day. Typically, some aspects of this efficiency are high in the morning, decline around midday and then rise again in the evening. Research has shown that female athletes in the experimental group with an evening biorhythm pattern, aligned with the timing of their training sessions, showed differences in muscular strength and precision compared to those with morning and irregular biorhythm patterns. In addition, there are fluctuations in the rhythm of some functional systems over a 24-hour period, and the biorhythms of different body systems have an interrelated effect on individual performance (Badeer, 1995: 48).

Biorhythms can therefore be classified into patterns based on the nature of an individual’s voluntary and involuntary nervous activity as follows:

- **Morning pattern:** Known as the “lark” pattern, people with a morning biorhythm show a high level of work and activity in the functional state of the motor system. They tend to have good stamina in low-oxygen conditions. Morning types typically sleep and wake up early and show energy in the morning that decreases in the second half of the day.

- **Daytime pattern:** Referred to as the “enthusiastic” or irregular pattern, individuals with this biorhythm have a high capacity for efficient work and high levels of activity throughout the day, whether in the morning or evening.

- **Evening biorhythm:** People with this pattern are highly efficient and effective in the evening. They tend to sleep late and find it difficult to wake up in the morning. Their functional state can be tense in the evening, leading to disturbances in central functions and regulatory mechanisms within the body.

Having discussed these three techniques, it is essential for educational institutions to ensure that teachers and educational counsellors, especially the latter who are responsible for the psychological follow-up of students, are proficient in using these techniques to diagnose student problems. In addition, all students can benefit from understanding biorhythms during their study sessions.

II. Application aspect:

1. Study Methodology: This study relied on the case study method and the descriptive method.

2. Study sample: A case suffering from psychological and educational problems in the state of “Mostaganem” was selected purposefully.

3. Study tools: The study used three tools:

- First tool: The genogram developed by the researcher “Lisa Palt”, modified by Dr Bn Quwa Jamila in 2018 and adapted to the Algerian context by Dr Kamari Mohammed. Its validity and reliability were assessed by (Dr Qouich Maghna and Bn Quwa Jamila, 2018).

- Second tool: A scale based on the theory of hemispheric dominance, which relates the characteristics and traits of each of the four brain areas defined by Hermann to thinking styles. Each style represents a sub-dimension of the scale, with its specific characteristics and traits adapted to the Algerian environment by (Dr Kamari Mohammed and Dr Belkird Mohammed, 2016). The styles are as follows:

- Style A: The person with this style enjoys working with facts, prefers numerical language, focuses on technical matters, relies on precision, analyses and justifies issues, is rational in decision-making and uses logic to solve problems, avoiding intuition and emotion.

- Style B: The person with this style prefers traditional ways of thinking, likes to organise and arrange things, prefers to work in a stable and secure environment, completes tasks after careful planning and values time.

- Style C: The person with this style is empathetic towards others and relies on their feelings and emotions rather than logic to solve problems. They use symbolic language to communicate and have body language skills.

- Style D: The person with this style is innovative and loves change, is excited by new ideas and experiences, has a holistic view rather than focusing on details, is multi-tasking, enjoys adventure and challenges, and tends not to follow rules.

- Third tool: An electronic program to calculate and determine the state of the biorhythm (mental, emotional, physical). This programme calculates a person’s biorhythm after entering the necessary information (date of birth, date for which the biorhythm is to be determined). In the first column, the person’s date of birth must be entered, and in the second column, the date for which the biorhythm state is to be determined. The remaining columns carry out the necessary calculations to determine the state of the mental, emotional and physical biorhythms (positive, negative, critical).

III. Results and Discussion:

Presentation of the Genogram for Wahid:

Picture

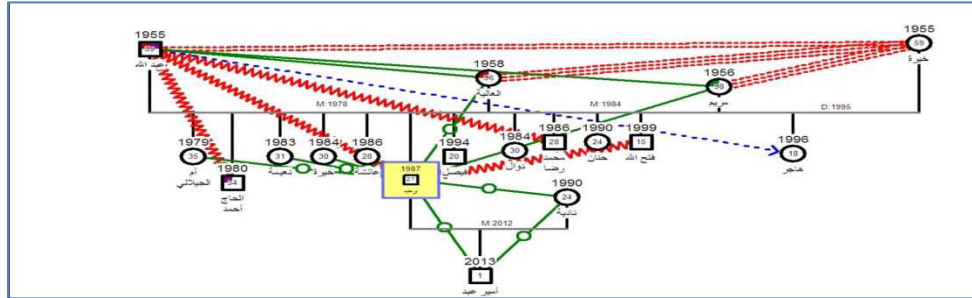
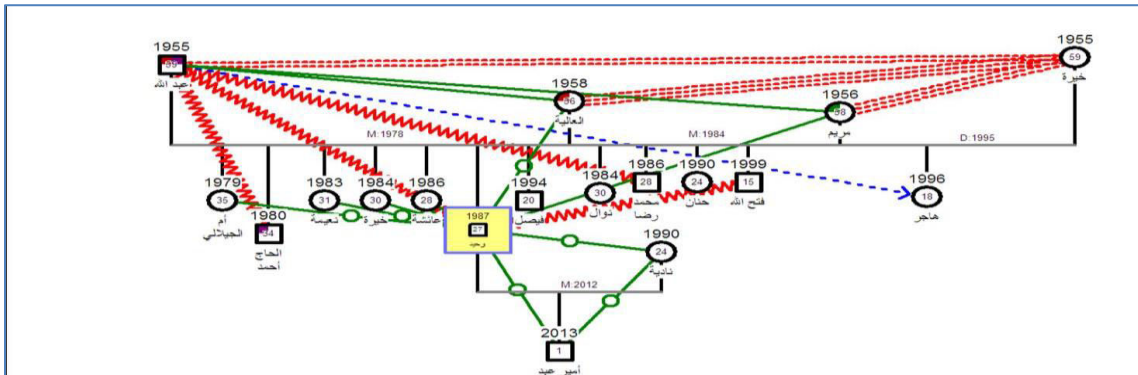


Figure (01): Ecological map of the genogram for Wahid

Comment: From the genogram we can identify the following negatives in Wahid’s life:



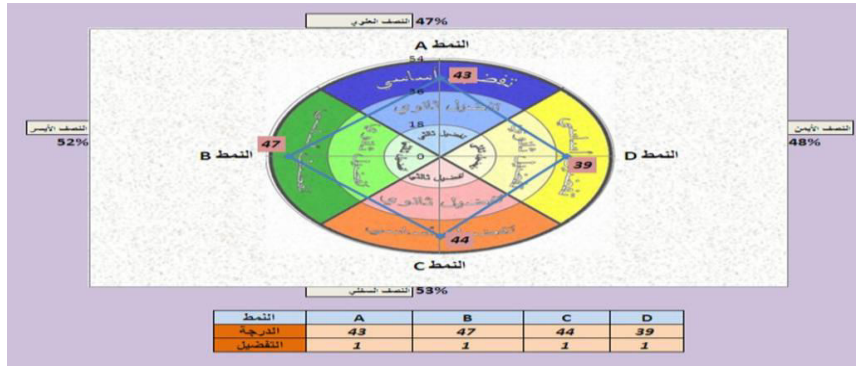
Picture



- A violent emotional relationship between Wahid and his father Abdullah.
- A conflict between Abdullah and his third wife, Khira, despite a harmonious relationship with his other two wives, Alia and Mariam.
- Resentment between his third wife, Khira, and his mother, Alia.
- A lack of relationship between Wahid and his father’s wife, Khira, although there is harmony between him and his father’s second wife, Mariam.
- Wahid’s love for his siblings is limited to his full sisters (Um Jilali, Naima, Khira, Aisha), while there is no close relationship with his brothers (Haj Ahmed, Faisal, Mohammed Reda, Fathallah) and half-sisters (Nawal, Hanan, Hajar).
- The presence of chronic diseases in Wahid’s family (diabetes and hypertension in his father, hypertension in his mother, diabetes in his full brother Haj Ahmed).
- There is no relationship between Wahid’s small family (his wife and son) and the rest of his relatives.

2.Hermann’s Brain Dominance Compass for Wahid

Picture



Picture



Figure (02): Hermann's Brain Dominance Compass for Wahid

3. Biorhythm of Wahid

Picture

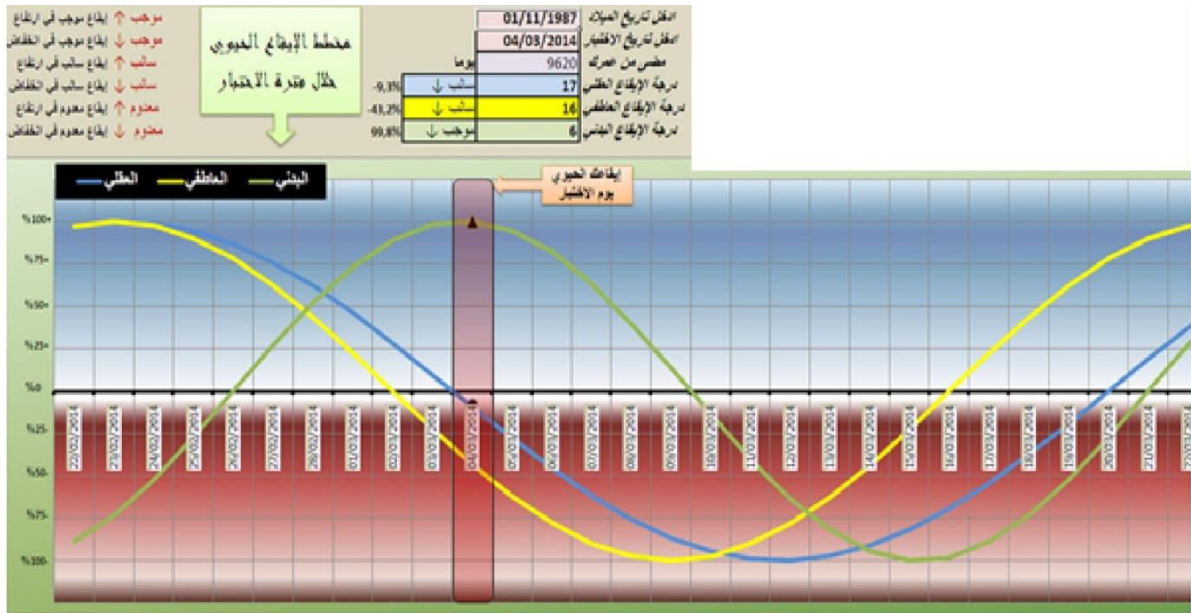


Figure (03): Biorhythm chart for Wahid

III. Discussion of the results:

From the results obtained, we observed that the genogram tool explained the relationship between Wahid and the other family members, as well as the emotional and social problems he faces. This indicates that the genogram

tool is important and necessary to reveal family relationships and to identify the type of disorder an individual may be suffering from.

Family factors contribute significantly to the formation of an individual's personality. According to Giesel, the family serves as a biological-cultural agent; it is biological because it is the best place to produce, protect and nurture a child, and cultural because it brings together people of different ages and sexes under one roof, closely connected, who determine social methods and issues relevant to society. This means that it transmits old traditions and creates new social values (Khoury, 1986: 140).

Home conditions, including amenities, physical circumstances, number of individuals, friends, parental occupation and educational level, are related to academic achievement. Parental attitudes are more influential than home conditions in determining differences in student achievement (Al-Arabi, 2010: 84).

It can be said that the genogram tool contributes significantly to the assessment of family relationships and, in the school environment, helps to identify differences between students and to describe their profiles. It also helps to identify positive sources of support in the environment that can be used to improve the situation of the individual or the family, as well as the sources that have led to the emergence of problems.

In Figure (2), we noted that Wahid falls under Style B, which indicates that he prefers traditional ways of thinking, is concerned with organising and arranging his belongings, prefers to work in a stable and secure environment, completes tasks after prior planning, and values time.

The Hermann Thinking Scale helps to identify an individual's predominant thinking style and can be used in the school environment. By using this scale, teachers can select teaching strategies according to their students' thinking styles and simplify the curriculum based on these styles. It also allows teachers to discover creative and gifted students.

Regarding biorhythms, we have observed that the individual has a positive physical rhythm followed by a negative mental and emotional rhythm. Naturally, the emotional rhythm affects the mental rhythm, which can be attributed to the prevailing dysfunctional relationships within the family. The critical days of the emotional cycle are those that require caution, as they can make the individual vulnerable to self-harm, violence or moods that appear stable (but unreasonable) to others. Each rhythm differs in the number of days, as noted by the engineer Alfred Telther in 1920, who studied the mental performance of students and how this performance behaves in a mental rhythm, similar to physical and emotional rhythms, with each rhythm differing in the duration of its cycle. Understanding biorhythms in the school environment is crucial as it determines psychological rhythms and forms the basis for understanding them. School rhythms can only establish themselves if they deal with biology in their mechanisms or respond to it satisfactorily. Otherwise we end up in a situation of generalisation, which makes it essential to keep the discussion in the context of the child's physiological needs, particularly in relation to health (C.L. Lambert, 1995: 475).

Conclusion:

In light of the results we have obtained, we conclude that the function of education and the roles of teachers and educational counsellors should be viewed from a new perspective at the dawn of the third millennium. Evolving human groups now desire a new type of school, one that is more in tune with the immense technological and information revolution that industrial societies are experiencing.

It is therefore essential that those responsible for education pay attention to students and their characteristics and identify their various problems, including family problems. The family environment in which a student grows up is a powerful factor influencing his personality and academic performance. Sometimes we find that a pupil has considerable ability, but family problems such as conflict, violence and control can hinder their development and understanding of lessons.

This is where the counsellor's role becomes crucial. They need a range of skills, including knowledge of techniques and methods for gathering information, such as case studies, and the use of the genogram as an objective tool to help diagnose problems and determine their nature based on family relationships. It also helps to gather important family information.

Suggestions:

Based on the above, we suggest the following:

- Raise awareness in the educational environment of the existence of family problems that may affect students' academic progress.
- Train guidance counsellors in the use of the Genogram, Hermann's Brain Dominance Compass and biorhythm tools.
- Rely on these important tools when counselling students.
- Encourage collaboration between teachers and guidance counsellors to help students work through their issues.

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