

• Companies nowadays are not hiring people based on their grades, everybody have grades, they are searching for enterprise skills = Problem solving skills, communication skills, digital skills (to know how to deal with digital devices), team work skills (to be able to work in a group), critical thinking & creativity skills.

• In neuro-psychology, scientists have found =

Left Brain = mathematical and verbal thinking.

Right Brain = holistic and imaginative thinking

• People tend to use just the dominant part of their brain when they need to solve a problem or learn something new.

=> But that means they look to the problem from just one angle, which may lead to more problems. And that's why we should get of this dominance and use both parts to solve complex life problems (because they are not that easy).

• Left brainers base their thinking on mainly collecting data, processing it to get the final logical expression.

• Right brainers tend more to look to the whole problem in order to get a better understanding.

• Quadrant A = Logical, factual, critical, analytical, technical and quantitative. (achievement oriented & performance driven).

• Quadrant B = structured, sequential, organized detailed and planned, they do things the way it should be done according to laws.

• Quadrant C = emotional, spiritual, sensory, feeling and people oriented, emotional intelligent they prefer working in teams and attending sports / playing with kids.

- Quadrant D: they are visual (remember pictures better)
(C+D is more than words), holistic (they look at the whole
about the limbic problem) visionary (thinking about future
and expect things).

Ned Hermann - is a scientist who study the brain
dominance.

Four quadrant Model: a model that studies how can we use
the whole brain (by Hermann)

Hermann Brain
dominance instrument = is a questionnaire of 180 questions,
we should pay to know your own
(HBDI) thinking preferences in order to
strengthen the weak parts.

- Hermann model is used in the whole world especially in companies (more than 100 famous companies in the world use this model to enhance productivity, innovation and collaboration) Nokia is bankrupt because she didn't use it. (fear of change).
- Men are holistic, while women care about details.
- Competence is achieved through motivation (internal or external), training (some people rely only on their intelligence so they fail because they are not competitive enough) and practicing.
- Algerian people tend to be dependent because the government is paying for every thing (or the family does).
- Most American universities are not creative, they are teaching students to be strong only on the left part.

Being triple brained doesn't mean you will succeed.
We say level free when you are using the least possible
of your brain.

How to develop creative problem solving? We have to
search for new undiscovered solutions, and not that
ones based on established rules already.

A development is change but not any change is development

A problem can be danger or can be an opportunity

Incidents, floods, earthquakes are an opportunity
that leads us to think about mistakes to do better in
the future (the buildings that have broken are what
killed people and not earthquakes).

Creativity in part D / critical thinking in A.

→ Both skills are needed.

Organizations use teams for creative outcomes (more
diversity = more creative solutions)

Thinking type ≠ skill (thinking type is a mindset
and the skill is to master that mindset).

Preparation - collecting data & infos

Incubation - you give time to your brain to think
wisely & deeply about the problem.

Illumination - when suddenly a solution pops up

Induction - starting from parts to whole (↓↓↓↓↓)

Deduction - the opposite (↑↑↑↑↑)

If you don't collect information you won't understand
and if you won't understand you can't diagnose
well.

Analytical skills are soft skills that helps us
ideas to solve complex life problems.

• analytical skills include = critical thinking, data analysis, research and communication

• science is based on cause and effects (experimental method (ex. Zeki)).

• Analytical skills involves the process of gathering relevant information, and identifying key issues related to this information. This type of thinking also requires you to compare sets of data from different resources, identify cause and effect patterns and draw appropriate conclusions from these data sets to get a proper solution.

• Patterns = categorize your observation or information.

• Tentative hypothesis = temporary one.

• Test is not the only way that we do to research. There is observation, evaluation, and we find that is not true, then it's not a scientific method anymore.

• Delphi technique = the company send the problem to 3 experts (or more) and then it will implement the best suggested solution.

• Energy \Rightarrow when there is just one brain working in the problem (one person)

• Energy \Rightarrow when there are more brains trying to find solutions.

<< we talk about trained brains and not any brain >>

• Brainstorming = • state the problem

• Generate as many solutions as possible

• wild / strange ideas are encouraged
(divergent thinking)

- no criticism is allowed.
- no laughing & no one has best solution
- judgement / evaluation is stopped till later.
- we choose the best answer / solution.
- we implement the best answer / solution
(it can be more than one)

Barriers to

critical thinking

= 1. egocentric thinking (like egotism) ^{= mentally retarded}

- refers to inability of a person to see the problem from other P.O.V's
(our opinion is the best).

2. Group think = (psychology = our behavior depends mainly on group think)
not expressing ourselves because we don't wanna be different.

3. Docrine mentality = a pattern of not paying attention to the world/people or surroundings (a conscious effort is the key).

4. Social conditioning = (A la mode!)

examples: the behavior of children as they imitate family members / friends / famous figures or even T.V characters.
(adolescents are influenced by peers more than parents)

5. Biased experience: when we forget that our tenth is not the only option. it hinders objective solutions or decisions

=> if it worked in the past doesn't mean it will work now.

the past experience is subjective.

6 - Schedule Pressures = when we have a limited period of time it keeps us away from creativity and we will think only on the best way with ~~less~~ less time to do it

7 - Greedance = like egosme

8 - Using emotions

9 - Fear of failure

10 - assumption without evidences.

11 - Basing opinion based on popularity.

other barriers - lack of knowledge, lack of motivation, fear of change, prefer competition than collaboration or the opposite.

Are there other barriers? of course.