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Creative Problem Solving

4. CULTURE, ENVIRONMENT AND CREATIVITY
Creativity is a positive word in a society constantly aspiring to innovation and “progress”.

Culture is the general expression of humanity, the expression of its creativity.

Culture is linked to meaning, knowledge, talents, industries, civilisation and values.

- Does music, visual art, cinema and poetry for instance contribute to creativity as a way to stimulate job creation, economic prosperity, learning and social cohesion?
- What is the social function of artistic and cultural creativity?
To emerge culture-based creativity requires:

- **personal abilities**
  - (ability to think laterally or in a non-linear way, to be imaginative),

- **technical skills**
  - (often artistic skills or craftsmanship),

- **a social environment**
  - (a social context through notably education and learning that encourages, and appreciates creativity as well as an economy that invest in culture and culture-based creativity).

‘Culture eats strategy for breakfast’
- Peter Drucker
• This culture-based creativity is linked to the ability of people, notably artists, to think imaginatively or metaphorically, to challenge the conventional, and to call on the symbolic and affective to communicate.

• Culture-based creativity has the capacity to break conventions, the usual way of thinking, to allow the development of a new vision, an idea or a product.

• The nature of culture-based creativity is closely linked to the nature of artistic contribution as expressed in art or cultural productions. The spontaneous, intuitive, singular and human nature of cultural creation enriches society.
Environmental Influences on Creativity

- If creativity is valued in the cultural setting, motivation to be creative increases.
- When practical constraints are put on creative thinking, creativity decreases.
  - Practical evaluation of creative ideas occurs early – restricts the ideas that can be produced
Components of Culture-Based Creativity

Conducive environment

Artistic Skills (technical expertise)

Lateral Thinking Skills

creativity
Conducive Environment

- Society plays an important role in developing and advancing creativity.
- A fundamental external factor that influences creativity is education and learning.
- Education and learning play a fundamental role in shaping a creative environment.
- Art and culture have the ability to stimulate people’s imagination and creativity in schools, in colleges and universities and in lifelong learning
Creativity in learning is about fostering “flexibility, openness for the new, the ability to adapt or to see new ways of doings things and the courage to face the unexpected.”

Imagination, divergent thinking and intuition need to be considered as important characteristics of progressive arts education – by schools, universities and further education providers.
Artistic Skill

- Undue emphasis on outcome rather than process is likely to frighten children away from originality. Taking risks without fearing failure is the cornerstone of creative endeavour.

- Arts schools specifically nurture creativity, as demonstrated in the way that art is taught and learned about. Their modes of teaching consist of promoting critical reflection, innovation, and the ability to question orthodoxies.
To further the appreciation of culture among all the people, to increase respect for the creative individual, to widen participation by all the processes and fulfillments of art—this is one of the fascinating challenges of these days.

(John F. Kennedy)
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5. CREATIVITY TECHNIQUES: LATERAL AND ANALOGICAL
LATERAL THINKING IS SOLVING PROBLEMS THROUGH AN INDIRECT AND CREATIVE APPROACH, USING REASONING THAT IS NOT IMMEDIATELY OBVIOUS AND INVOLVING IDEAS THAT MAY NOT BE OBTAINABLE BY USING ONLY TRADITIONAL STEP-BY-STEP LOGIC.

THE TERM WAS COINED IN 1967 BY EDWARD DE BONO.
Lateral thinking is the deliberate search for alternatives.

Lateral thinking: a way of thinking which seeks the solution to intractable problems through unorthodox methods, or elements which would normally be ignored by logical thinking.

Lateral thinking is a way of attacking problems from other angles, as opposed to the more traditional linear and logical ways.
## Lateral Thinking vs Vertical Thinking

<table>
<thead>
<tr>
<th>Vertical Thinking</th>
<th>Lateral Thinking</th>
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</thead>
<tbody>
<tr>
<td>is selective &amp; analytical</td>
<td>generative, proactive</td>
</tr>
<tr>
<td>is sequential</td>
<td>can make jumps</td>
</tr>
<tr>
<td>one has to be correct at every step</td>
<td>may be wrong at some stage</td>
</tr>
<tr>
<td>moves only if there is direction</td>
<td>moves to generate direction</td>
</tr>
<tr>
<td>uses negative to block off certain pathways</td>
<td>no negative in any function</td>
</tr>
<tr>
<td>concentrates and excludes what is irrelevant</td>
<td>welcomes intrusion</td>
</tr>
<tr>
<td>categories, classification are fixed</td>
<td>categories, classifications not fixed</td>
</tr>
<tr>
<td>follows most likely path</td>
<td>explores least likely path</td>
</tr>
<tr>
<td>finite process</td>
<td>probabilistic process</td>
</tr>
</tbody>
</table>

Centre of General Studies, LUC
LINEAR CREATIVITY
(Logic/Knowledge)

Focus
Depth
Skills
Hard Work
Experience
Growth
Expansion

LATERAL CREATIVITY
(Intuitive/Imagination)

Breadth
Innovation
Uniqueness
Analogies
Out-of-the-Box
Non-Logic

Digging the hole deeper
Digging the hole somewhere else
Edward de Bono's Lateral Thinking
Think more, think differently, think radically

- Break existing patterns and change paradigms
- Generate more ideas and develop fresh thinking
- Solve challenging problems in new and different ways

Lateral thinking to help you think differently
Example: situation puzzle

- A man walks into a bar, and asks the bartender for a drink of water. The bartender pulls out a gun, points it at the man, and cocks it. The man pauses, before saying "Thank you" and leaving. What happened?

  - The question-and-answer segment might go something like this.
  1. Question: Could the bartender hear him? Answer: Yes
  2. Question: Was the bartender angry for some reason? A: No
  3. Question: Was the gun a water pistol? A: No
  4. Question: Did they know each other from before? A: No (or: "irrelevant" since either way it does not affect the outcome)
  5. Question: Was the man's "thank you" sarcastic? A: No (or with a small hint: "No, he was genuinely grateful")
  6. Question: Did the man ask for water in an offensive way? A: No
  7. Question: Did the man ask for water in some strange way? A: Yes
Answer

TERMINOLOGY:
- **Yope** is a word devised to answer a question with yes & no simultaneously, in a sense saying *Yes, but ...* and *No, but ...* at the same time. This would be used when it would be misleading to give a simple "yes" or "no" answer to the player's question.
- **N/a** (or stating "irrelevant") is used when a question is not applicable to the current situation or when a "yes" or "no" answer would not provide any usable information to solving the puzzle.
- **Irrelevant, but assume yes** is used when the situation is the same regardless of what the correct answer to the question is, but assuming one direction will make further questioning easier or the situation more likely. An example from the puzzle above: “Was the gun loaded?”

Eventually the questions lead up to the conclusion that the man had the hiccups, and that his reason for requesting a drink of water was not to quench his thirst but to cure his hiccups.
The bartender realized this and chose instead to cure the hiccups by frightening the man with the gun.
Once the man realized that his hiccups were gone, he no longer needed a drink of water, gratefully thanked the bartender, and left.
2. Analogical Thinking

THE MOST COMMON CREATIVE PROCESS
IS ANALOGICAL THINKING--THE
TRANSFER OF AN IDEA FROM ONE
CONTEXT TO A NEW ONE.

PERHAPS 80 PERCENT OF CREATIVE
IDEAS ARE ROOTED IN ANALOGICAL
THINKING, AND EXAMPLES ABOUND IN
EVERY FIELD OF HUMAN CREATIVITY.
**Analogical reasoning** is any type of **thinking** that relies upon an analogy. An **analogical argument** is an explicit representation of a form of analogical reasoning that cites accepted similarities between two systems to support the conclusion that some further similarity exists.

**Analogical thinking** is a creative method for a problem that needs a solution.

**Analogical thinking** happens when a familiar problem is used to solve a novel problem of the same type.

<table>
<thead>
<tr>
<th>Types of Analogies</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Part to whole</td>
<td>battery : flashlight :: hard drive : computer</td>
</tr>
<tr>
<td>Cause and effect</td>
<td>fatigue : yawning :: itching : scratching</td>
</tr>
<tr>
<td>Person to situation</td>
<td>mother : home :: teacher : school</td>
</tr>
<tr>
<td>Synonym</td>
<td>obese : fat :: slender : thin</td>
</tr>
<tr>
<td>Antonym</td>
<td>poverty : wealth :: sickness : health</td>
</tr>
<tr>
<td>Geography</td>
<td>Chicago : Illinois :: Denver : Colorado</td>
</tr>
<tr>
<td>Measurement</td>
<td>pound : kilogram :: quart : liter</td>
</tr>
<tr>
<td>Time</td>
<td>March : spring :: December : winter</td>
</tr>
</tbody>
</table>
Gutenberg's printing press was a combination of the stamper used for minting coins and a wine press.

Darwin used a human solution to explain a natural phenomenon: His origin of species explanation stemmed from selective cattle breeding practices.

Virtually every architect and designer keeps stacks of books and magazines filled with ideas waiting to be adopted.

- You need not sit back and wait for analogous connections to appear by themselves.
- Analogical thinking can be a conscious technique if you deliberately ask questions like these:
  "What else is like this?"
  "What have others done?"
  "Where can I find an idea?"
  "What ideas can I modify to fit my problem?"
Figure 2. A^4-Innovation Process for New Product Innovation by Analogical Thinking
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6. CREATIVITY TECHNIQUES: BRAINSTORMING & SYNATIC
3. Brainstorming

Brainstorming is a group or individual creativity technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its member(s).
Advertising executive Alex Faickney Osborn began developing methods for creative problem solving in 1939. He was frustrated by employees’ inability to develop creative ideas individually for ad campaigns. In response, he began hosting group-thinking sessions and discovered a significant improvement in the quality and quantity of ideas produced by employees.

The term ‘brainstorming’ was popularized by him in the 1953 book *Applied Imagination*.

Osborn claimed that brainstorming was more effective than individuals working alone in generating ideas, although more recent research has questioned this conclusion.

Today, the term is used as a catch all for all group ideation sessions.
Techniques To Develop Solutions
Brainstorming Session: Flow of Ideas

The **ideas** you want to develop should flow from the strategies you identify to achieve the objectives.

**Objective** is what you want to achieve.

**Strategy** is how you propose to achieve the objective.

Adapted from: "101 Ways To Generate Great Ideas", Timothy R.V. Foster
1000ventures.com
80/20 or Pareto rules _ ie roughly 80% of the effects come from 20% of the causes

Perfect Brainstorming
10 Rules

1. Set directions. Describe the situation and define the problem.
2. Involve everyone. Celebrate diversity.
3. Encourage cross-fertilization. Combine and synergize ideas.
4. Encourage outside-the-box thinking.
5. Don't overlook the obvious.
6. Suspend judgment. All ideas are good ideas.
7. Don't fear repetitions.
8. Don't stop and discuss. Go for quantity, not quality.
9. Record and display each idea. Make sure each idea is complete.
10. Apply the 80/20 rule and change hats to select the best ideas.
The Perfect Brainstorm (from IDEO)

7 Secrets of Better Brainstorming

1. SHARPEN THE FOCUS
   Start with a well-honed statement of the problem

2. PLAYFUL RULES
   Don’t start to critique or debate & encourage wild ideas

3. NUMBER YOUR IDEAS
   Go for quantity - 100 ideas per hour is good!

4. BUILD AND JUMP
   When the energy starts to fade facilitator should build on an idea or take a jump

5. THE SPACE REMEMBERS
   Capture the ideas in a medium visible to the whole group

6. STRETCH YOUR MENTAL MUSCLES
   Warm up if the group are new to each other or don’t regularly brainstorm or likely to be distracted by other pressing matters

7. GET PHYSICAL
   Encourage diagrams, stick figures (2-D), mock-ups and models (3-D)
Writing Idea and Details Brainstorming Organizer

My idea is

Details about my idea are
1. _______________________
2. _______________________
3. _______________________
4. _______________________

My idea is

Details about my idea are
1. _______________________
2. _______________________
3. _______________________
4. _______________________

My idea is

Details about my idea are
1. _______________________
2. _______________________
3. _______________________
4. _______________________
Challenges To Effective Group Brainstorming

- A good deal of research refutes Osborn's claim that group brainstorming could generate more ideas than individuals working alone. But, Michael Diehl and Wolfgang Stroebe found that, overwhelmingly, groups brainstorming together produce fewer ideas than individuals working separately.

- Several factors can contribute to a loss of effectiveness in group brainstorming:
  - **Blocking**: Because only one participant may give an idea at any one time, other participants might forget the idea they were going to contribute or not share it because they see it as no longer important or relevant.
  - **Collaborative fixation**: Exchanging ideas in a group may reduce the number of domains that a group explores for additional ideas. Members may also conform their ideas to those of other members, decreasing the novelty or variety of ideas, even though the overall number of ideas might not decrease.
  - **Evaluation apprehension**: Evaluation apprehension was determined to occur only in instances of personal evaluation. If the assumption of collective assessment were in place, real-time judgment of ideas, ostensibly an induction of evaluation apprehension, failed to induce significant variance.
- **Free-riding:** Individuals may feel that their ideas are less valuable when combined with the ideas of the group at large. Indeed, Diehl and Stroebe demonstrated that even when individuals worked alone, they produced fewer ideas if told that their output would be judged in a group with others than if told that their output would be judged individually.

- **Personality characteristics:** Extraverts have been shown to outperform introverts in computer mediated groups. Extraverts also generated more unique and diverse ideas than introverts when additional methods were used to stimulate idea generation, such as completing a small related task before brainstorming, or being given a list of the classic rules of brainstorming.

- **Social matching:** One phenomenon of group brainstorming is that participants will tend to alter their rate of productivity to match others in the group. This can lead to participants generating fewer ideas in a group setting than they would individually because they will decrease their own contributions if they perceive themselves to be more productive than the group average. On the other hand, the same phenomenon can also increase an individual's rate of production to meet the group average.
4. Synectics

Synectics comes from the Greek and means "the joining together of different and apparently irrelevant elements.

Synectics, developed by William J. J. Gordon and George M. Prince, is an approach that deals with the stages of identifying solutions and overcoming obstacles to carrying out a solution. In the Synectics approach, a team working on possible solutions to a Problem takes an "excursion" into a fantasy environment somehow related to the Problem. The ideas developed in the fantasy environment, using an open form of team participation, are then translated back into the real-world environment of the Problem to become potential solutions. This consideration of the Problem in a fantasy context allows the team to develop solutions that would otherwise not be discovered. Synectics also involves using analogies and metaphors to develop creative ways of developing solutions.
Based on the work by
Edward de Bono
“Thinking--The Ultimate Human Resource”

- We can always improve our thinking skills.
- Confused thinking arises from trying to do too much at once.
- We should emphasize what can be, not what is.
Three Philosophers

- Socrates: Focused on the Negative
- Plato: See Shadows of the Truth
- Aristotle: Concerned with What Is--
  – Analysis, Judgment, Argument
Six hats is parallel thinking.
Results of Six Hat Thinking

- Deriving power from focused thinking
- Saving time
- Removing ego from decisions
- Doing one thing at a time
WHITE

Neutral and Objective

Deals with Facts
RED

- Emotions
- Feelings
- Hunches
- Intuition
BLACK

- Serious
- Cautious
- Careful
- Lays Out Risks
YELLOW

- Optimistic
- Hopeful
- Positive Thinking
- Constructive
- Effective
GREEN

■ Creative

■ New Ideas and Concepts

■ Search for Alternatives
BLUE

- Control
- Organization
- Responsible for Conclusions
- Sets the Focus
- Use of All the Hats
Use Preset Sequence

- Discipline
- Timing
- Guidelines
Results of Six Hat Thinking

Decisions Seem to Make

Themselves!
What If It’s Not Possible to Make a Decision?

- May Need More Information
- Can’t Reconcile Values
- May Depend on Future Information
Two Main Purposes For Six Thinking Hats

- Simplifies thinking by having to deal with one thing at a time.
- Allows a switch in thinking without threatening ego.
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1. THE IMPORTANCE AND BARRIERS TO CREATIVITY
In the end of this topic, students will be able to gain knowledge about the importance and barriers to creativity.
The Importance of Creative Problem Solving

We live in a world where there appear to be more problems than solutions, making life potentially stressful.

Every problem has more than one solution, but to waste creative efforts only leads to more stress.

Employing your creative skills is empowering.

It’s always good to brush up on your creative skills.
What is creative thinking?

• Ability to imagine/ invent something new
The Brain

Left side (logical thinking)
- analytic
- objective
- verbal

(creative thinking)
Right Side
- generative
- possibility
- subjective
- visual
Is not a talent

Empowers people by adding strength to their natural abilities, which improves teamwork, productivity, and where appropriate.
What happen if there is no creativity?

- No progress and we would be forever repeating the same patterns

“If your only tool is a hammer, you’ll see every problem as a nail.”

—Abraham Maslow
Hence, creativity can be define in 3 aspects:

- **Attitude**: creative person knows that there is always room for improvement
- **Process**: the ability to accept change
- **Ability**: generate new ideas by combining, changing or reapplying existing ideas
Arthur Van Gundy’s
Obstacles to the Creative Process

• Barriers of Thinking from Western Perspective
  1. Perceptual roadblocks
     - stereotyping
  2. Emotional roadblocks
     - fear of taking risk
  3. Cultural roadblocks
     - fantasy and reflection are a waste of time
The 5 Most Dangerous Creativity Killers

1. Role Mismatch
   • As Einstein said, “Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid.”

2. External End-Goal Restriction
   • Although self-restriction can often boost creativity, the Harvard study shows that external restrictions are almost always a bad thing for creative thinking.

3. Strict Ration of Resources
   • While money and physical resources are important to creativity, the Harvard study revealed that mental resources were most important, including having enough time (time is considered as resource also).
4. Lack of Social Diversity
- Homogeneous groups have shown to be better able to get along, but it comes at a cost: they are less creative.

5. Discouragement/No Positive Feedback
- It’s tough to continue working on novel ideas when you haven’t received any positive feedback.
A Creative Problem-Solving Strategy

- Describe the problem or issue.
- Generate some viable ideas.
- Select the best idea(s) and refine.
- Implement the best idea.
- Evaluate the outcome. (Did it work? Why or why not? If not, start over again to find the best solution.)
The Map of Creative Problem Solving

- Description of the problem
- Generating ideas
- Idea selection & refinement
- Evaluation & analysis of action plan
- Idea implementation
Best Application of Creative Problem Solving

- We are all bound to have problems to solve from small issues to huge dilemmas.
- We all have the skills (four aspects of creativity) to use in every situation.
- Creative problem solving will prove to be your most valuable coping skill for every stressor.
1. Why is creativity thought to be such an important coping technique?

2. Describe the four stages of von Oech’s creative thinking process model.

3. Why is the order so important in this model?
4. What are four common “blocks” to the creative process?

5. List the five steps in the creative problem-solving process.
Connect all 9 dots with 4 straight lines. Go through each dot only once. Do not lift your pencil from the paper.
Creative Problem Solving

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2. PROBLEM SOLVING AND CREATIVITY
Outline

1. The Problem-Solving Cycle
2. Types of Problems
   1. Well-Structured Problems
   2. Ill-Structured Problems and the Role of Insight
3. Creativity
1. The Problem-Solving Cycle

PROBLEM SOLVING

The process of overcoming obstacles to answer a question or to achieve a goal
The Problem Solving Cycle

1. Problem Identification
   - We have to recognize that we have a goal or that the solution we had in mind does not work

2. Problem definition and representation
   - We have to define and represent the problem well enough to understand how to solve it
3. Strategy formulation

- We have to plan a strategy for solving the problem which may involve
  - Analysis – breaking down the whole of a complex problem into manageable elements
  - Synthesis – putting together various elements to arrange them into something useful
  - Divergent thinking – you try to generate a diverse assortment of possible alternative solutions to a problem
  - Convergent thinking – you narrow down the multiple possibilities to converge on a single, best answer
4. Organization of Information
   - You have to organize the available information in a way that enables you to implement the strategy.
   - You organize the information strategically, finding a the most suitable representation.

5. Resource allocation
   - We have limited resources (time, money, equipment, space,...)
   - We have to decide how much we want to invest into the problem solving.
6. Monitoring

- It is necessary to monitor the process of solving the problem to make sure that we are getting closer to the goal.
- We need to reassess what we are doing to be able to compensate for possible flaws.

7. Evaluation

- You need to evaluate your solution after you have finished.
- New problems can be recognized, the problem may be redefined, new strategies may come to light, and new resources may become available.
The Problem Solving Cycle

- Incubation
  - Putting the problem aside for a while
  - Problem will be processed subconsciously
  - The benefits of incubation can be enhanced in two ways:
    - Invest enough time in the problem initially
    - Allow sufficient time for incubation to permit the reorganization of information
2. Types of Problems

1. WELL-STRUCTURED PROBLEMS
2. ILL-STRUCTURED PROBLEMS AND THE ROLE OF INSIGHT
1. Well-Structured Problems

- Problems with clear paths to their solutions
- Computer simulations of well-defined problems
  - Problem space
    - The universe of all possible actions that can be applied to solving a problem
  - Algorithms
    - Sequences of operations that may be used recursively (repeated over and over again)
• Humans use heuristics
  ○ Informal, intuitive, speculative strategies that sometimes lead to an effective solution and sometimes do not
  ○ If we store in long-term memory several simple heuristics that we can apply to a variety of problems, we can lessen the burden of our limited-capacity working memory
• Heuristics
  1. Means-ends analysis
     - Analyze the problem by viewing the end (the goal to be sought) and then try to decrease the distance between the current position in the problem space and the end goal in that space
  2. Working forward
     - Start at the beginning and try to solve the problem from the start to the finish
• Heuristics (cont.)
  o Working backward
    ▷ The problem-solver start at the end and tries to work backward from there
  o Generate and test
    ▷ The problem-solver generates a list of alternative ways of action, not necessarily in systematic way, and then notices in turn whether each course of action will work
• **Isomorphic Problems**
  ○ Two problems are isomorphic if their formal structure is the same, and only their content differs
  ○ E.g. games that involve constructing words from jumbled or scrambled letters

• **Problems of Problem Representation**
  ○ A major determinant of the relative ease of solving a problem is how the problem is represented
2. Ill-Structured Problems and the Role of Insight

- There is no clear, readily available path to solution
- Ill-structured problems do not have well-defined problem spaces, and problem solvers have difficulty constructing appropriate mental representations for modeling these problems and their solutions
Try to solve the following problems:

- A woman who lived in a small town married 20 different men in that same town. All of them are still living, and she never divorced any of them. Yet she broke no laws. How could she do this?

- You have loose black and brown socks in a drawer, mixed in a ratio of five black socks for every brown one. How many socks do you have to take out of that drawer to be assured of having a pair of the same color?
• **Insight**

  ○ a distinctive and sometimes seemingly sudden understanding of a problem or of a strategy that aids in solving the problem

  ○ Often, an insight involves reconceptualizing a problem or a strategy for its solution in a totally new way

  ○ Insight can be involved in solving well-structured problems, but it is more often associated with ill-structured problems
• Insight
  o The Early Gestaltist View
    ▪ Insight problems require problem solvers to perceive the problem as a whole
  o The Nothing-Special View
    ▪ Insight is merely an extension of ordinary perceiving, recognizing, learning, and conceiving
Insight

- The Neo-Gestaltist View
  - Insightful problem solving can be distinguished from noninsightful problem solving in two ways:
    - When given routine problems to solve, problem solvers show remarkable accuracy in their ability to predict their own success in solving a problem.
    - When given insight problems, problem solvers show poor ability to predict their own success prior to trying to solve the problems.
3. Creativity

IT’S HOW MUCH YOU PRODUCE

IT’S WHAT YOU KNOW

IT’S WHO YOU ARE

IT’S WHERE YOU ARE
3. Creativity

- Creativity
  - The process of producing something that is both original and worthwhile
  - Creative individuals show creative productivity, producing inventions, insightful discoveries, artistic works, revolutionary paradigms
  - Creative individuals usually have creative lifestyles, characterized by flexibility, nonstereotypical behaviors, and nonconforming attitudes
3. Creativity

- **It’s How Much You Produce**
  - Creative individuals can come up with many different ways to solve problems

- **It’s What You Know**
  - What distinguishes remarkably creative individuals from less remarkable people is their expertise and commitment to their creative endeavor
3. Creativity

- **It’s Who You Are**
  - Role of personality and motivation in creativity
  - Intrinsic motivation (enjoyment of the creative process) is essential to creativity, whereas extrinsic motivation (fame, fortune) actually may impede creativity

- **It’s Where You Are**
  - External factors that contribute to creativity
  - Context (time, space, resources) of creative work
Creative Problem Solving

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3. INTELLIGENCE, PERSONALITY AND CREATIVITY
Creativity

Creativity is the ability to come up with new ideas through a mental process of connecting existing concepts. The ideas don’t have to be revolutionary (which is a common misconception many people have about creative thinking), they just have to be new for the thinker.
PERSONALITY HAS TO DO WITH INDIVIDUAL DIFFERENCES AMONG PEOPLE IN BEHAVIOUR PATTERNS, COGNITION AND EMOTION. DIFFERENT.
INTELLIGENCE IS CLASSICALLY DEFINED AS “THE ABILITY TO ACQUIRE AND UTILIZE KNOWLEDGE.” IN TESTING CIRCUMSTANCES, AN INTELLIGENCE QUOTIENT (IQ) IS GAUGED BY ONE’S ABILITY TO UTILIZE INFORMATION GAINED HISTORICALLY.
One of the most prominent notions concerning the interplay between intelligence and creativity is the threshold hypothesis, which assumes that above-average intelligence represents a necessary condition for high-level creativity.
“Creativity is just connecting things. When you ask creative people how they did something, they feel a little guilty because they didn’t really do it, they just saw something. It seemed obvious to them after a while.

That’s because they were able to connect experiences they’ve had and synthesize new things. And the reason they were able to do that was that they’ve had more experiences or they have thought more about their experiences than other people.”
Knowledge vs Experience

The image makes a clear point— that knowledge alone is not useful unless we can make connections between what we know. Whether you use the terms "knowledge" and "experience" to explain the difference or not, the concept itself is sound.
HOW TO MAKE CONNECTIONS BETWEEN WHAT WE KNOW?

1. ADD TO YOUR KNOWLEDGE—THE POWER OF BRAND NEW EXPERIENCES

- After all, the more knowledge you have, the more connections you can make. Start by reading more, reading more widely, and exploring new opportunities for gathering knowledge (for instance, try some new experiences—travel, go to meetups or take up a new hobby).

- Researcher, Dr. Duezel explained: when it comes to experiencing new things:

  "Only completely new things cause strong activity in the midbrain area."
As Austin Kleon suggests, take a notebook (or your phone) with you everywhere & take notes. Don’t expect your brain to remember everything—give it a hand by noting down important concepts or ideas you come across. As you do this, you may remember previous notes that relate (hey, you’re making connections already!)—make a note of those as well.

You can do this even when you’re in the shower with something like Acqua Notes. The shower is especially a place that has proven to make us more creative.
3. REVIEW YOUR NOTES DAILY—THE BENJAMIN FRANKLIN METHOD

- Going over your notes often can help you to more easily recall them when you need to. Read through what you’ve made notes of before, and you might find that in the time that’s passed, you’ve added more knowledge to your repertoire that you can now connect to your old notes!
- In fact, this used to be one of Benjamin Franklin’s best kept secrets. Every morning and every evening he would review his day answering 1 simple question:
- "What good have I done today?"
Conclusion

- Expert creatives don’t need to be more intelligent than the average person.
- They simply do three things more diligently than anyone else: they have more experiences, they think on their experiences more often, and when they start pursuing potential outcomes to problems or projects they simply work more with the ideas they come up with (whereas everyone else gives up after evaluating just one or two possible ideas, or by letting their inner critic prevent them from exploring more).
Creativity within our personal lives influences our self-view and social standing. Modern developments in psychology have revealed the mind's ability to shift viewpoints and behaviour as a result of simultaneous mental operations that are manifest in the multiplicity view of personality.
29 WAYS TO STAY CREATIVE

1. MAKE LISTS
2. CARRY A NOTEBOOK EVERYWHERE
3. TRY FREE WRITING
4. GET AWAY FROM THE COMPUTER
5. QUIT BEATING YOURSELF UP
6. TAKE BREAKS
7. SING IN THE SHOWER
8. DRINK COFFEE
9. LISTEN TO NEW MUSIC
10. BE OPEN
11. SURROUND YOURSELF WITH CREATIVE PEOPLE
12. GET FEEDBACK
13. COLLABORATE
14. DON'T GIVE UP
15. PRACTICE
16. ALLOW YOURSELF TO MAKE MISTAKES
17. GO SOMEWHERE NEW
18. COUNT YOUR BLESSINGS
19. GET LOTS OF REST
20. TAKE RISKS
21. BREAK THE RULES
22. DON'T FORCE IT
23. READ A PAGE OF THE DICTIONARY
24. CREATE A FRAMEWORK
25. STOP TRYING TO BE SOMEONE ELSE'S PERFECT
26. GOT AN IDEA? WRITE IT DOWN
27. CLEAN YOUR WORK PLACE
28. HAVE FUN
29. FINISH SOMETHING
31 WAYS TO BE CREATIVE

BY ANNA VITAL

1. Do what you are underskilled to do
2. Shed defense mentality
3. Visualize
4. Do faster than you doubt
5. Mix unmixables
6. Allow randomness
7. Dive deep
8. Think simple
9. Borrow ideas
10. It's all about connecting things
11. Face your fears
12. Stay hungry
13. Be brave
14. Use what you got
15. Better done than perfect
16. Destroy creatively
17. Be wrong
18. Collaborate
19. Stretch ideas far
20. Serve your reader - make it simple
21. Useless unless used
22. Do first think later
23. One man's trash is another's treasure
24. Finish before you lose faith in you
25. Listen for the hidden insight
26. Imagine that all is possible
27. Don't try doing - just do
28. It's always too early to quit
29. Live like there is no crisis
Some Additional Thoughts

- The creative person uses information to form new ideas.

- The real key to creative problem solving is what you do with the knowledge.

- Creative problem solving requires an attitude that allows you to search for new ideas and use your knowledge and experience.

- Change perspective and use knowledge to make the ordinary extraordinary and the usual commonplace.
• This is a common incomplete figure exercise. Complete the picture in each window.

• This is a test of divergent thinking, the more creative you are the more interesting the results tend to be.