Creative THINKING

Unleash the Power of Your Imagination

MOHD FIRDAUS MAMAT JUNOH • RAZ ZARINDA MOHD RASHID

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FOR POLYTECHNIC TVET FOUNDATION STUDENT ONLY

Creative thinking: Unleash Your Power of Imagination

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PREFACE

In today's dynamic and rapidly changing world, creative thinking has become an indispensable skill for both educators and students. The ability to think creatively not only fosters innovation but also equips individuals with the tools to solve complex problems and approach challenges with fresh perspectives. **Creative Thinking: Unleash the Power of Your Imagination** is designed as a practical guide for use in the classroom, offering both lecturers and students valuable insights, techniques, and strategies to nurture creative thought processes.

This book provides lecturers with a comprehensive framework to inspire students to think beyond conventional boundaries. Each chapter integrates both theoretical concepts and practical activities, making it easy to incorporate creative thinking exercises into lesson plans and classroom interactions. The structured approach ensures flexibility, catering to a variety of teaching methods and learning environments.

For students, this book serves as a roadmap to unlocking creative potential. It encourages the development of critical thinking and imaginative problem-solving through a series of hands-on exercises. The activities are designed to challenge traditional thought patterns, pushing learners to explore new ways of thinking and apply creativity to academic and real-life situations.

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SYNOPSIS

In today's dynamic and rapidly changing world, creative thinking has become an indispensable skill for both educators and students. The ability to think creatively not only fosters innovation but also equips individuals with the tools to solve complex problems and approach challenges with fresh perspectives. **Creative Thinking: Unleash the Power of Your Imagination** is designed as a practical guide for use in the classroom, offering both lecturers and students valuable insights, techniques, and strategies to nurture creative thought processes.

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Creative Thinking: Unleash the Power of Your Imagination emphasizes the importance of active learning, collaboration, and reflection. It promotes a classroom culture where creativity can thrive, enhancing both teaching effectiveness and student engagement. The content focuses on practical applications, helping students and educators connect creative thinking with real-world outcomes, making it a valuable tool in the academic journey.

This book is a guide for fostering a learning environment where creative ideas flourish and innovative solutions emerge. It is an invitation to explore the boundless possibilities of imagination in the pursuit of knowledge and progress.

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Their dedication to enhancing educational resources has been invaluable.
Special thanks also go to the Asasi TVET Program at Politeknik Tun Syed Nasir for their commitment to advancing creative thinking in technical and vocational education. The insights and feedback provided by the academic staff have greatly enriched the content and approach of this book.

We would also like to express our appreciation to Madam Akhmaliah binti Abd Rahim and Madam Rohaya binti Mohamed Bahari for their meticulous language checking and invaluable input, ensuring clarity and precision in the publication of this book. Thank you both for your guidance in bringing this project to life.

Finally, we extend heartfelt gratitude to the entire team at Politeknik Tun Syed Nasir (PTSN) for their collaboration, dedication, and professionalism. This book stands as a testament to the collective effort and shared vision of promoting creativity and innovation in education.

Last but not least, a special thanks goes to our families for their unwavering support throughout our work and studies. Their encouragement and understanding have been instrumental in making this project a success.
Thank you to all who contributed to making this book a reality.

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Raz Zarinda binti Mohd Rashid

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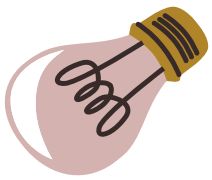
- Creative Thinking
- Examples of Creative Thinking
- Activities

1.0 INTRODUCTION TO CREATIVE THINKING

"Creativity" is a word commonly added and repeated in many areas of life and may have different meanings to different people. Creativity in general, has many different meanings an implication, reflect in diversity of philosophical conceptions and values regarding creative talent. View of creativity could be described as emphasizing the person, process, product or environment.

Creativity has been valued as universal capability that it can be applied in everyday situations. It is interpreted as capability of human intelligence instead of a subject. Sternberg defines creativity as an imaginative action fashioned so as to produce outcomes which are both original and of value (Craft et al. 2006; Sternberg, 2003; as cited in Robson, 2013)

According to Sternberg and Lubart (1996), creativity refers to the capacity for coping with a given problem in authentic ways. Such capacity is about looking at a specific situation and problem from different perspectives.



CREATIVE THINKING

"Creative thinking can be defined as the entire set of cognitive activities used by individuals according to a specific object, problem and condition, or a type of effort toward a particular event and the problem based on the capacity of the individuals.

They try to use their imagination, intelligence, insight, and ideas when they face to such situations.

In addition, they try to suggest an authentic and new design, generate different hypotheses, solve the problem with the help of discovering and finding new applications (Glass, 2004; Young & Balli, 2014)

Generally, creative thinking is correlated to critical thinking, and problem solving. Actually, there are three dimensions of creative thinking as synthesising, articulation and imagination having the following qualities (Aslan, 2007; Rhodes, 1961; Sternberg, 2009)

1 Synthesising

This dimension includes various activities such as getting benefit from analogous thinking, deducing original result from small parts, presenting novel and authentic suggestions to the solution of the problem.

2 Articulation

It involves forming the old and new knowledge or expanding the current knowledge with the help of the new one, constructing unusual relationship to produce authentic solutions and making thoughts concrete with the help of imagination and use of the materials.

3 Imagination

This dimension is consisted of constructing relationship between valid and reliable thoughts, presenting flexible ways of thought with the help of imagination, to come up with different insights during idea producing process.

- Flexibility
- Authenticity
- Multiple thinking
- Wondering
- Thinking fast and independent
- Wondering
- To be open to criticism
- Rationalism
- Being suspicious
- To come up with different solutions
- To realize and define the problem
- To suggest possible solutions

Based on the dimensions of the creative thinking, its general characteristics can be listed as the following (Gilhooly, Ball & Macchi, 2015; Kember & Leung, 2009; Liu, He & Li, 2015);

At the best level, “creative” means bringing into being something that was not there before and has been brought into being. The word “creativity” covers a large range of various skills. Creative skills needed to alter concepts and perceptions.In most descriptions of problem-solving, there's usually a step called “search for alternatives”.

This suggests that creativity is required during this step. Creativity is poorly understood and difficult to show but there are positive techniques that everybody can learn.

Edward de Bono notes creative techniques like focus, challenge, alternatives, concepts, etc. De Bono, E. (1993)

Creative thinking is an activity to make new opinions or ideas (Rugiero, 1998). Creative thinking is an ability to create different ideas, not common, original with a correct and exact result (Andiyana, Maya, & Hidayat, 2018).

Creative thinking is closely related to the alternative to problem-solving (Larasati, Santosa, & Sari, 2018). The ability to think creatively makes someone becomes easier to faceand overcome problems (Happy & Widjajanti, 2014).Creative thinking is an activity to make new opinions or ideas (Rugiero, 1998)

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EXAMPLES OF CREATIVE THINKING

Doyle (2019) found Opportunities for creative thought within the workplace vary from the apparent artistic position to the highly technical one. Generally, anything that involves an "Aha" moment is taken into account creative. Here are some samples of the way to display power in several jobs.

01

Artistic Creativity

You do not be an artist for your work to possess an inventive element. Perhaps you arrange retail displays for optimum impact or shape the trail of an attractive hiking trail. Other creatively professions maybe enclose designing logos, writing advertising copy, creating the packaging for a product, or drafting a phone script for a fundraising drive. Creating a new fundraising script for volunteers

02

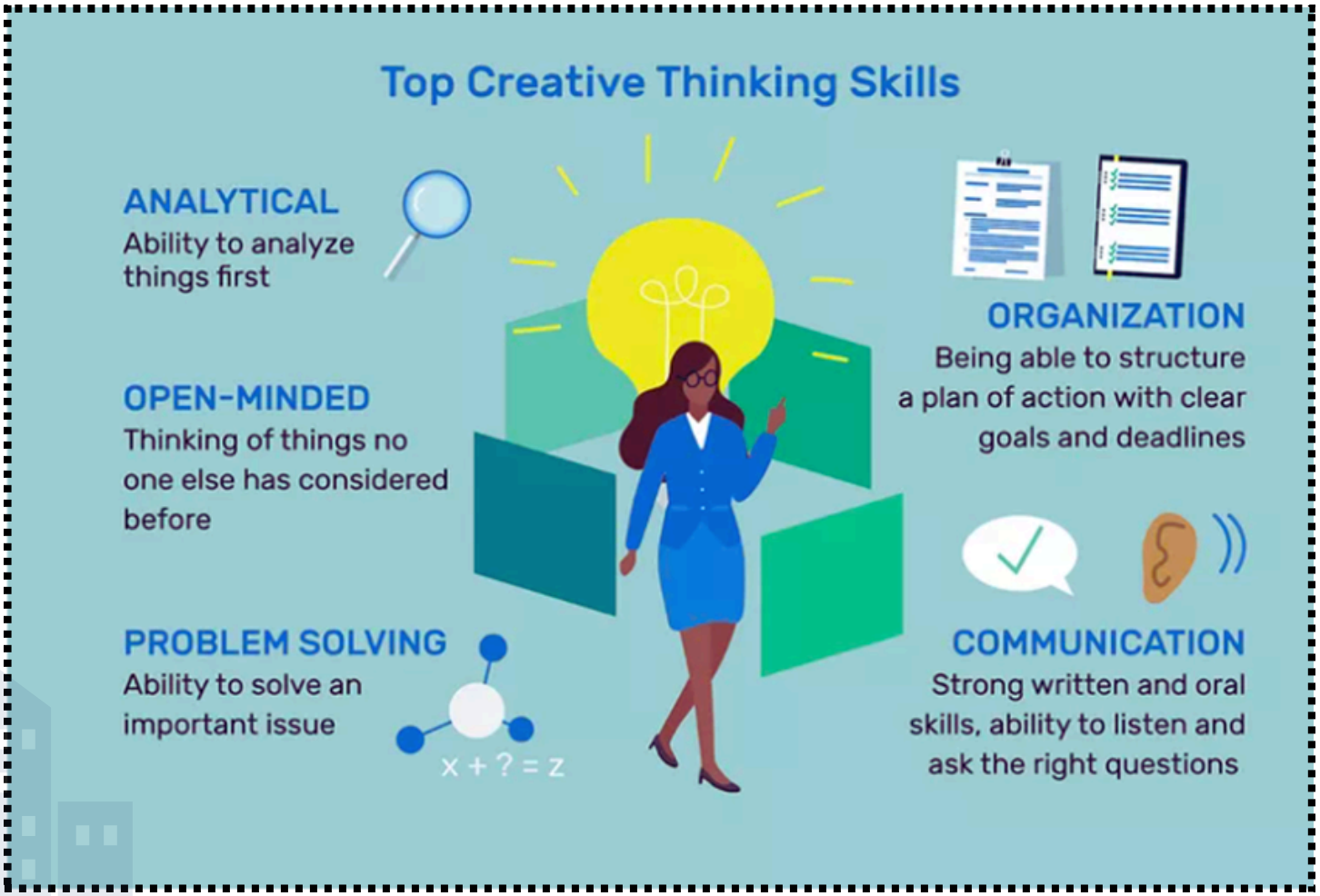
Creative Problem-Solving

Creative problem-solving is considered innovative so a creative solver will find new solutions in place of identifying and implementing the standard only. You would possibly brainstorm new ways to cut energy use, find new ways to chop costs during a budget crisis or develop a novel litigation strategy to defend a client. These all entail power on your part.

03

Creativity in STEM (science, technology, engineering, and math)

Some people think of science and engineering as the careful opposite of art and creativity. However, the converse is real. The field of STEM (science, technology, engineering, and math) is highly creative .For example, designing a more efficient assembly line robot, writing an innovative new computer program, or developing a testable hypothesis, are all highly creative acts.



Activity

ACTIVITY: INDIVIDUAL REFLECTION EXERCISE
TASK: STUDENTS WILL WRITE A REFLECTIVE ESSAY (200-300 WORDS) ON HOW CREATIVE THINKING HAS IMPACTED THEIR DAILY LIFE. THEY SHOULD PROVIDE EXAMPLES WHERE THEY APPLIED OR OBSERVED CREATIVE THINKING TO SOLVE A PROBLEM, WHETHER PERSONAL, SOCIAL, OR ACADEMIC.

OBJECTIVE: HELP STUDENTS RECOGNIZE THE IMPORTANCE OF CREATIVE THINKING IN REAL-LIFE SITUATIONS.

INTERACTIVE ELEMENT: AFTER SUBMITTING THEIR ESSAYS, STUDENTS WILL PARTICIPATE IN A PEER REVIEW SESSION WHERE THEY GIVE FEEDBACK ON ONE ANOTHER'S REFLECTIONS. THIS ENCOURAGES DISCUSSION AND EXCHANGE OF IDEAS.

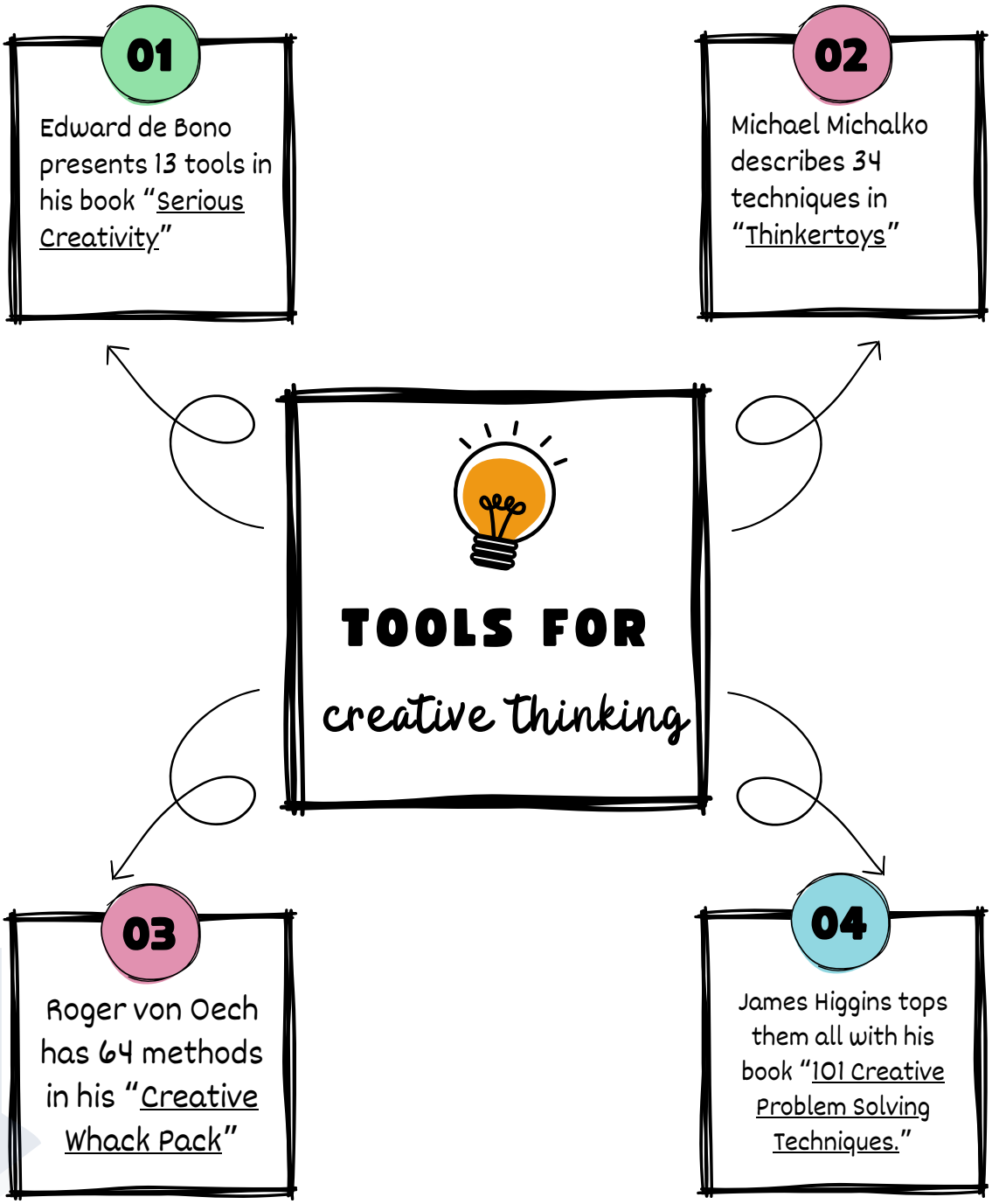
1.2 THREE BASIC PRINCIPLES OF CREATIVE THINKING

- Three Basic Principles of Creative Thinking
- The Value of Understanding the Three Principles
- Activities

1.2 THREE BASIC PRINCIPLES OF CREATIVE THINKING

Three Basic Principles Behind All Methods for Creative Thinking: Attention, Escape, and Movement

There are many tools for creative thinking in the literature...



Despite the diversity of tools to support creative thinking, all such tools are based on three simple principles: attention, escape, and movement. Plsek (1997)

The tools of creative thinking are simply various combinations of practical ways to implement this heuristic—to focus attention, escape the current reality, and continue mental movement. The relative weights given to attention, escape, and movement, and the mechanics of directing these three mental actions, vary among the methods. But this variation makes sense because each situation we encounter is different, each group is different, and each person is different. Once we understand these three basic principles, we can adapt techniques to suit various needs, situations, and personalities.

01 Attention

Creativity requires that we first focus our attention on something; typically, something that we have not focused much attention on before.

Example :

The primary innovation of the Apple Macintosh computer in the early 1980s was that its designers focused not on raw computing power, but on the user interface. By focusing attention on things that are normally taken for granted (in this case, the command line interface predominant in the early 1980s), creative thinking techniques prepare our minds for breakthroughs (here, the graphical user interface).

02 Escape

The second principle behind all creative thinking methods calls us to mentally escape our current patterns of thinking. Having focused our attention on the way things are currently done.

Example :

stating what is known as a Leaping Provocation is a direct method for inviting mental escape from current patterns of thinking. To a group working to decrease the time that customers wait to receive a service, we might say, "They have passed a law making it illegal for customers to wait more than 30 seconds; what are we going to do now?" The statement invites us to escape our current paradigm about customer flow and, for a moment, imagine a very different world.

03 Movement

Movement is a key principle behind the classic creative thinking technique of brainstorming. The ground rules of brainstorming are to generate as many ideas as you can, with no criticism, building on the ideas of others. In other words, keep moving. Similarly, asking a group to come up with a sketch that illustrates their vision of the company's future is also a movement technique. You can't simply state the vision and be done with it, your mind must dwell on it long enough to complete the sketch. During that time, the mind—which is never idle—generates new connections and ideas that might expand the basic concept.

Three basic principles of creative thinking

Divergent Thinking 01

Divergent thinking is the cornerstone of creative thought. It involves generating a multitude of ideas, perspectives, and solutions in response to a single problem or question. Instead of converging on a single solution, divergent thinking encourages you to explore a wide range of possibilities. This principle encourages you to suspend judgment, embrace ambiguity, and break free from conventional thought patterns. By generating a plethora of diverse ideas, you create a fertile ground for innovation and unexpected breakthroughs.

02 Combining and Connecting:

Creative thinking often thrives at the intersection of seemingly unrelated ideas or concepts. This principle involves combining elements from different domains, fields, or contexts to generate novel solutions. By seeking out connections between disparate pieces of information, you can unveil innovative insights and fresh perspectives. It's through these intersections that new ideas are born, as you fuse together elements that others might have overlooked. The act of deliberately connecting the dots can lead to solutions that are greater than the sum of their parts.

03 Resilience in the Face of Failure:

Failure is an intrinsic part of the creative process. Embracing failure and setbacks as stepping stones to success is a fundamental principle of creative thinking. This principle encourages you to view failures not as dead ends, but as opportunities for learning and growth. Creative thinkers approach challenges with a mindset that welcomes experimentation, iteration, and refinement. They understand that each failed attempt brings them closer to a breakthrough. By nurturing a resilient attitude, you can navigate the twists and turns of the creative journey with determination and adaptability.

These three principles - divergent thinking, combining and connecting, and resilience in the face of failure - lay the groundwork for fostering creativity. They guide your mindset, actions, and approach as you seek to navigate the landscape of innovative thinking. By internalizing and applying these principles, you open yourself up to a world of endless possibilities, where the ordinary transforms into the extraordinary through the magic of creative thought.

The Value of Understanding the Three Principles

The benefit of this simple, three-part structure is that it opens the way to the development of an infinite number of methods for directed creativity. You can now develop your own techniques. Importantly, you can develop techniques that are specifically suited to the issues you are dealing with, to your own personality and preferences, or to the subtle dynamics of a particular group. As long as your new technique contains elements that focus attention, provides escape from the mental patterns normally associated with the topic, and encourages a high level of flexible mental movement, you can be reasonably assured that it stands as good a chance of working as any other technique you may have read about. If your technique doesn't bring you success initially, you can modify the means or mixture of attention, escape, and movement and try again. There is no magic in the methods written down in books; at least no magic that you cannot duplicate on your own.

Activity

ACTIVITY: ONLINE QUIZ WITH INTERACTIVE FEEDBACK

- **TASK**: STUDENTS WILL COMPLETE AN ONLINE QUIZ (10 MULTIPLE-CHOICE QUESTIONS) BASED ON THE THREE BASIC PRINCIPLES OF CREATIVE THINKING: (1) FLEXIBILITY, (2) ORIGINALITY, AND (3) FLUENCY. THE QUESTIONS WILL TEST THEIR UNDERSTANDING OF THESE PRINCIPLES AND HOW THEY APPLY TO PROBLEM-SOLVING.

- **OBJECTIVE**: ASSESS STUDENTS' COMPREHENSION OF KEY CREATIVE THINKING CONCEPTS.

- **INTERACTIVE ELEMENT**: THE QUIZ WILL PROVIDE IMMEDIATE SCORE AND CORRECT ANSWER.

TRY IT NOW

Three Basic Principles of Creative Thinking Quiz

QUIZ WRAP-UP: UNDERSTANDING CREATIVE THINKING PRINCIPLES

GREAT JOB COMPLETING THE QUIZ! HERE ARE THE KEY TAKEAWAYS TO SOLIDIFY YOUR UNDERSTANDING OF FLEXIBILITY, ORIGINALITY, FLUENCY, AND HOW THEY RELATE TO DIVERGENT THINKING, COMBINING AND CONNECTING IDEAS, AND RESILIENCE IN THE FACE OF FAILURE:

1. **DIVERGENT THINKING:**

DIVERGENT THINKING IS ABOUT EXPLORING MANY POSSIBLE SOLUTIONS, THINKING BROADLY, AND GENERATING MULTIPLE IDEAS. THIS IS THE FOUNDATION FOR CREATIVE PROBLEM-SOLVING, AS IT ALLOWS YOU TO CONSIDER VARIOUS ANGLES AND POSSIBILITIES RATHER THAN STICKING TO A SINGLE APPROACH.

2. **FLEXIBILITY:**

BEING FLEXIBLE MEANS ADAPTING YOUR THINKING AND BEING OPEN TO DIFFERENT STRATEGIES WHEN TACKLING A PROBLEM. FLEXIBILITY IS ESPECIALLY IMPORTANT WHEN YOUR INITIAL SOLUTION DOESN'T WORK. CREATIVE THINKERS ADJUST THEIR APPROACHES, FINDING NEW WAYS TO OVERCOME CHALLENGES.

3. **ORIGINALITY:**

ORIGINALITY IS KEY TO CREATIVITY—IT'S THE ABILITY TO COME UP WITH UNIQUE AND NOVEL IDEAS THAT NO ONE ELSE HAS THOUGHT OF. COMBINING UNRELATED CONCEPTS OR DRAWING INSPIRATION FROM UNUSUAL SOURCES OFTEN LEADS TO HIGHLY INNOVATIVE SOLUTIONS.

QUIZ WRAP-UP: UNDERSTANDING CREATIVE THINKING PRINCIPLES

4. FLUENCY:
FLUENCY REFERS TO THE NUMBER OF IDEAS YOU CAN GENERATE. THE MORE IDEAS YOU PRODUCE, THE GREATER THE LIKELIHOOD OF FINDING AN EFFECTIVE AND CREATIVE SOLUTION. FLUENCY IS IMPORTANT BECAUSE IT ENCOURAGES AN ABUNDANCE OF IDEAS, EVEN IF NOT ALL OF THEM ARE PERFECT.

5. RESILIENCE IN THE FACE OF FAILURE:
FAILURE IS A NATURAL PART OF THE CREATIVE PROCESS. RESILIENT THINKERS LEARN FROM THEIR MISTAKES AND PERSIST, EVEN WHEN THEIR IDEAS DON'T INITIALLY SUCCEED. THEY USE FAILURE AS A STEPPING STONE TO REFINE THEIR APPROACH AND COME UP WITH EVEN BETTER IDEAS.

CONCLUSION:
CREATIVE THINKING IS A DYNAMIC AND ITERATIVE PROCESS. BY PRACTICING FLEXIBILITY, GENERATING ORIGINAL IDEAS, AND PRODUCING A HIGH VOLUME OF POTENTIAL SOLUTIONS, YOU ENHANCE YOUR CREATIVE POTENTIAL. MOST IMPORTANTLY, RESILIENCE HELPS YOU PUSH THROUGH SETBACKS AND CONTINUE TO INNOVATE. KEEP APPLYING THESE PRINCIPLES IN REAL-WORLD SITUATIONS TO IMPROVE BOTH YOUR PROBLEM-SOLVING SKILLS AND CREATIVITY!

1.3 CHARACTERISTICS OF CREATIVE THINKER

- Characteristics Of Creative Thinker
- Activities

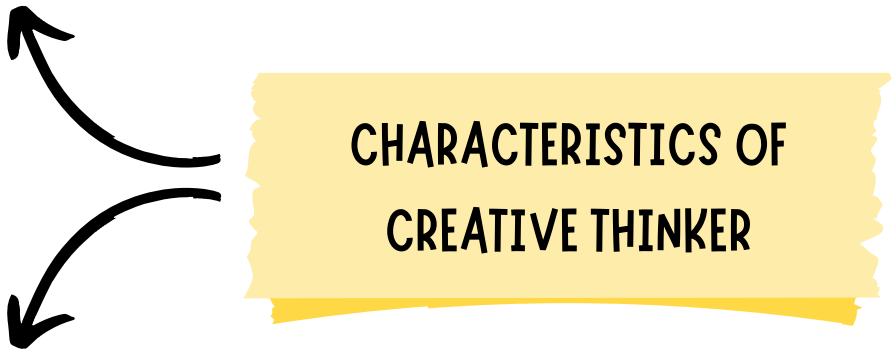
1.3 CHARACTERISTICS OF CREATIVE THINKER

THEY ARE COMMUNICATORS

Creativity and confidence are expressed in some ways through both listening and communicating. This is often why creative thinkers are good communicators.

THEY ARE OPEN-MINDED

An open mind could be a mind that appreciates criticism, is prepared for brand new solutions and concepts, and is not frightened of evaluating ideas. An individual who is open-minded is willing to be told from both successes and mistakes, having the ability to grow and develop.



THEY ARE RISK-TAKERS

Exploring new ideas and techniques is impossible without risk-taking, as a willingness to face challenges and accept change. Creative thinkers are resilient, and that they do not seem to be terrified of taking an opportunity, knowing that one has to be brave when exploring innovative and original ways of brooding about and solving problems.

THEY ARE KNOWLEDGEABLE

To develop an understanding of things and situations, you would like a background story. Knowledge allows creative thinkers to determine the total picture, which is why they know lots about the world they add and that they are experts in what they are doing, and also the and what they base their expertise on.

OPEN-MINDEDNESS

Creative thinkers are open to new ideas, perspectives, and experiences. They are willing to challenge their own assumptions and explore unfamiliar territories, which allows them to see things from different angles and come up with innovative solutions.

CURIOSITY

A strong sense of curiosity drives creative thinkers to explore, question, and learn continuously. They ask "why" and "what if" to uncover hidden connections and possibilities that others might overlook.

CHARACTERISTICS OF CREATIVE THINKER

IMAGINATION

Creative thinkers have vivid imaginations that enable them to visualize concepts, scenarios, and solutions that go beyond the ordinary. They can mentally experiment with different options and envision outcomes that haven't yet been realized.

RISK-TAKING

Creative thinkers are willing to take calculated risks and step outside their comfort zones. They understand that innovation often involves uncertainty and are not afraid to push boundaries and challenge the status quo.

FLEXIBILITY

Adapting to changing situations and embracing ambiguity is crucial for creative thinkers. They can pivot their thinking and approaches when faced with unexpected challenges, allowing them to find new paths forward.

ORIGINALITY

Creative thinkers strive to break away from clichés and conventions. They seek to develop ideas that are unique and distinct, pushing the boundaries of what is known to create something fresh and innovative.

CHARACTERISTICS OF CREATIVE THINKER

PERSISTENCE

Creative thinking involves trial and error. Creative thinkers exhibit persistence and determination in the face of setbacks and failures. They view challenges as learning opportunities and continue to refine their ideas.

CROSS-DISCIPLINARY THINKING

Creative thinkers often draw from a wide range of disciplines and fields, applying insights from one domain to another. This cross-disciplinary approach allows them to generate novel connections and solutions.

OBSERVATION

Creative thinkers are keen observers of the world around them. They notice details, patterns, and anomalies that others might miss, which can spark new ideas and insights.

COLLABORATION

Creative thinkers value collaboration and recognize the power of diverse perspectives. They are open to feedback, eager to learn from others, and thrive in environments where ideas can be shared and refined collectively.

CHARACTERISTICS OF CREATIVE THINKER

PLAYFULNESS

Embracing a playful and experimental mindset allows creative thinkers to approach problems with a fresh perspective. They aren't afraid to engage in creative play, which can lead to unexpected breakthroughs.

CRITICAL THINKING

Creative thinking is not just about generating ideas; it also involves evaluating and refining those ideas. Creative thinkers are able to critically assess their own work and make informed decisions about which ideas to pursue.

NONCONFORMITY:

Creative thinkers often challenge societal norms and think outside the box. They aren't constrained by conventional thinking and are willing to question established practices and beliefs.

EMPATHY

Understanding the perspectives and needs of others is important for generating ideas that resonate with different audiences. Creative thinkers can put themselves in others' shoes to create solutions that address real-world problems

CHARACTERISTICS OF CREATIVE THINKER

SENSITIVITY TO PATTERNS

Creative thinkers can recognize patterns and trends that emerge from disparate pieces of information. This ability to identify connections helps them generate insights and ideas that others might overlook

Activity

ACTIVITY: GROUP DISCUSSION AND PRESENTATION

- **TASK**: STUDENTS WILL BE DIVIDED INTO SMALL GROUPS (4-5 MEMBERS) AND ASKED TO CHOOSE A FAMOUS CREATIVE FIGURE (E.G., PROPHET MUHAMMAD, STEVE JOBS, MARIE CURIE). EACH GROUP WILL RESEARCH THE CHARACTERISTICS OF THEIR CHOSEN INDIVIDUAL AND PREPARE A PRESENTATION EXPLAINING HOW THESE TRAITS CONTRIBUTED TO THEIR SUCCESS.

- **OBJECTIVE**: PROMOTE COLLABORATION AND HELP STUDENTS IDENTIFY AND UNDERSTAND THE TRAITS OF CREATIVE THINKERS, SUCH AS RISK-TAKING, THINKING OUTSIDE THE BOX, AND PERSISTENCE.

- **INTERACTIVE ELEMENT**: GROUPS WILL PRESENT THEIR FINDINGS IN CLASS, FOLLOWED BY A Q&A SESSION WHERE CLASSMATES CAN ASK QUESTIONS AND GIVE FEEDBACK. THIS FOSTERS ENGAGEMENT AND CRITICAL THINKING AMONG ALL PARTICIPANTS.

1.4 CREATIVE THINKING TECHNIQUE

- Brainstorm
- How to Implement Effective Brainstorming Techniques.
- Mindmapping
- Activities

1.4 CREATIVE THINKING TECHNIQUE

Creative thinking techniques are methods and approaches used to stimulate and enhance the generation of creative ideas and solutions. They encourage individuals to think beyond conventional boundaries and come up with innovative, original, and unique concepts. These techniques can be applied to various fields, including art, design, problem-solving, and business. There are many creative thinking techniques available, but we will only discuss two techniques:

Brainstorm and mindmapping

Brainstorming is a fundamental creative thinking technique used to generate a wide variety of ideas in a short period. It encourages participants to think freely and creatively without the fear of judgment.

Brainstorm

Brainstorming is a technique used to gather ideas. This method can be employed to search for ideas in order to find solutions to specific problems. The approach is carried out to discover ideas based on spontaneity and creativity. This activity trains the brain to generate new ideas that have never existed before. All the gathered ideas will be organized into a solution.

This activity creates an environment where each member can actively contribute and freely express ideas without criticism. This technique encourages everyone to share their thoughts and ideas. The purpose of this activity is to seek solutions to a particular problem. This technique is commonly applied in the business world, which requires the development of creative new ideas and concepts. However, this idea generation process is also frequently used in other organizations and institutions.

Engaging in brainstorming activities can sharpen your skills in expressing opinions, critical thinking, and participating in discussions. Therefore, do not hesitate to participate in an organizational activity and engage in brainstorming during the idea development process to produce the best solutions.

Brainstorming is a fundamental creative thinking technique used to generate a wide variety of ideas in a short period. It encourages participants to think freely and creatively without the fear of judgment. When applied effectively, brainstorming can lead to innovative solutions and fresh perspectives. Here's how to use brainstorming as a creative thinking technique:

Generate Ideas

Encourage Quantity and Diversity

Build on Ideas

Embrace Silence and Revisit Ideas

Review and Discuss

Categorize and Prioritize


Select Ideas for Further Development
Create an Action Plan
Build on Ideas
Encourage Reflection and Learning
Review and Discuss

How to Implement Effective Brainstorming Techniques.

Set the main goal

Prepare the team members.

Determine the venue and timing of the event or choose the location and schedule for the event.

Appoint a leader.

Facilitate discussions or engage in discussions.

Avoid criticism

Gather ideas, take notes, and summarize.

How to Implement Effective Brainstorming Techniques.

Set the main goal

To ensure that the brainstorming session runs more effectively, the first thing to do is to establish the main goal. It is not possible to solve all problems in just one session as the time available is also limited.

1

Prepare the team members.

2

So that the project team can conduct an effective brainstorming session to develop innovative ideas, the step of preparing the team members can be done.

Determine the venue and timing of the event or choose the location and schedule for the event.

3

The timing of the event should also be discussed beforehand to ensure that all team members can agree and feel comfortable during the brainstorming session.

Appoint a leader

4

The leader should be able to understand the situation, conduct the event, and formulate the questions that need to be asked. Through this, team members will be encouraged to express their opinions. All the ideas gathered will be re-evaluated to reach a final conclusion.

How to Implement Effective Brainstorming Techniques.

Facilitate discussions or engage in discussions.

Prepare dedicated sessions to discuss the ideas that have been collected. Although the initial concept is to gather ideas spontaneously, to save time, team members are usually assigned to prepare their ideas before the brainstorming session begins.

Gather ideas, take notes, and summarize.

iDo not lose any ideas that have been expressed by the members. For this reason, every idea that is contributed should be recorded neatly and systematically. This should be done to facilitate the process of drawing conclusions in the final session. By doing so, you can develop actions for implementing the solutions to address specific problems.

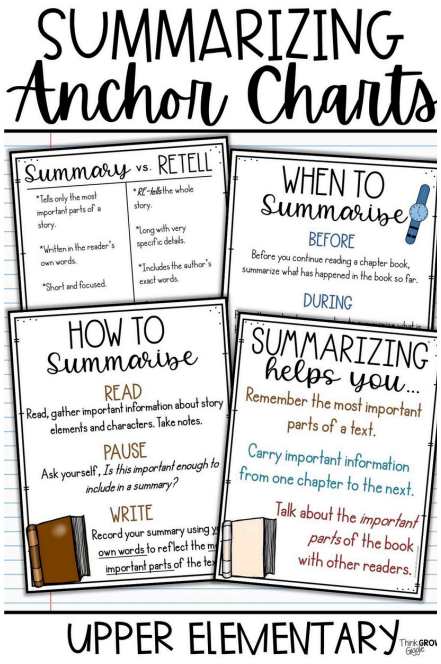
5

6

7

Avoid criticism

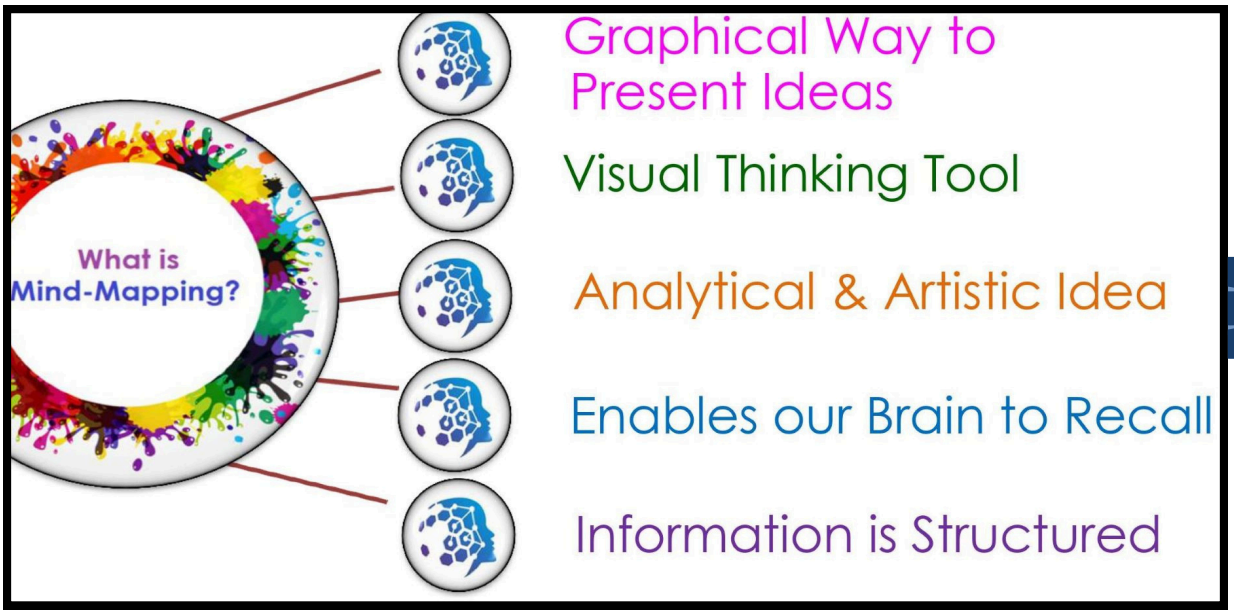
Criticism can create limitations and make other members hesitant to express their ideas. Gather all the incoming ideas to have more references. Encourage members to think and come up with creative ideas.

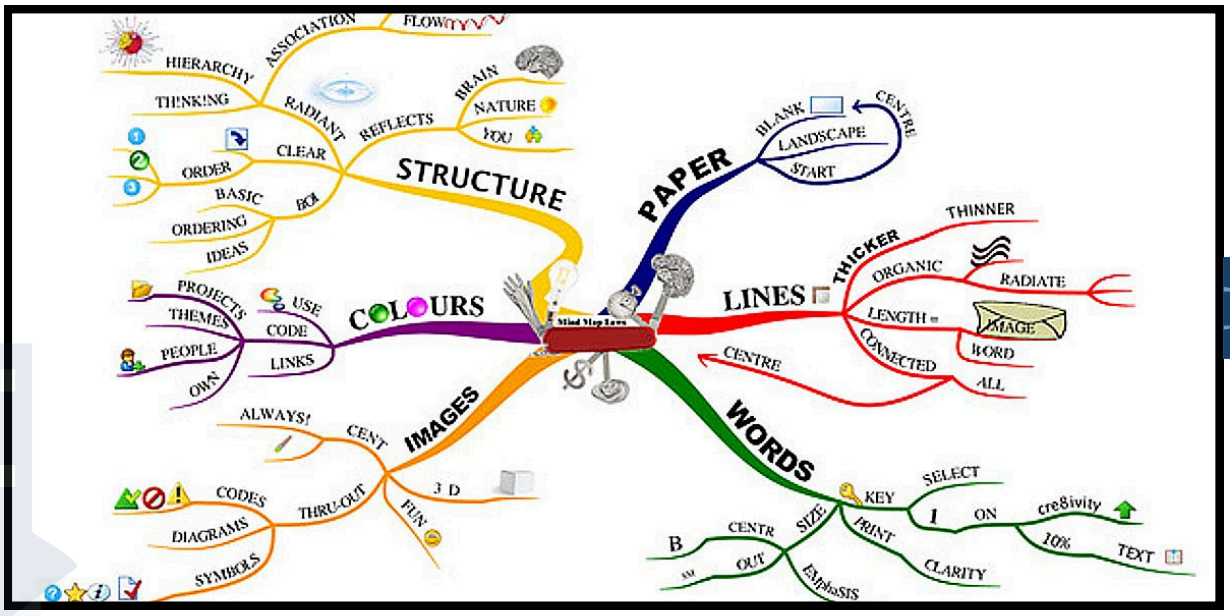


1.4 CREATIVE THINKING TECHNIQUE

Mindmapping

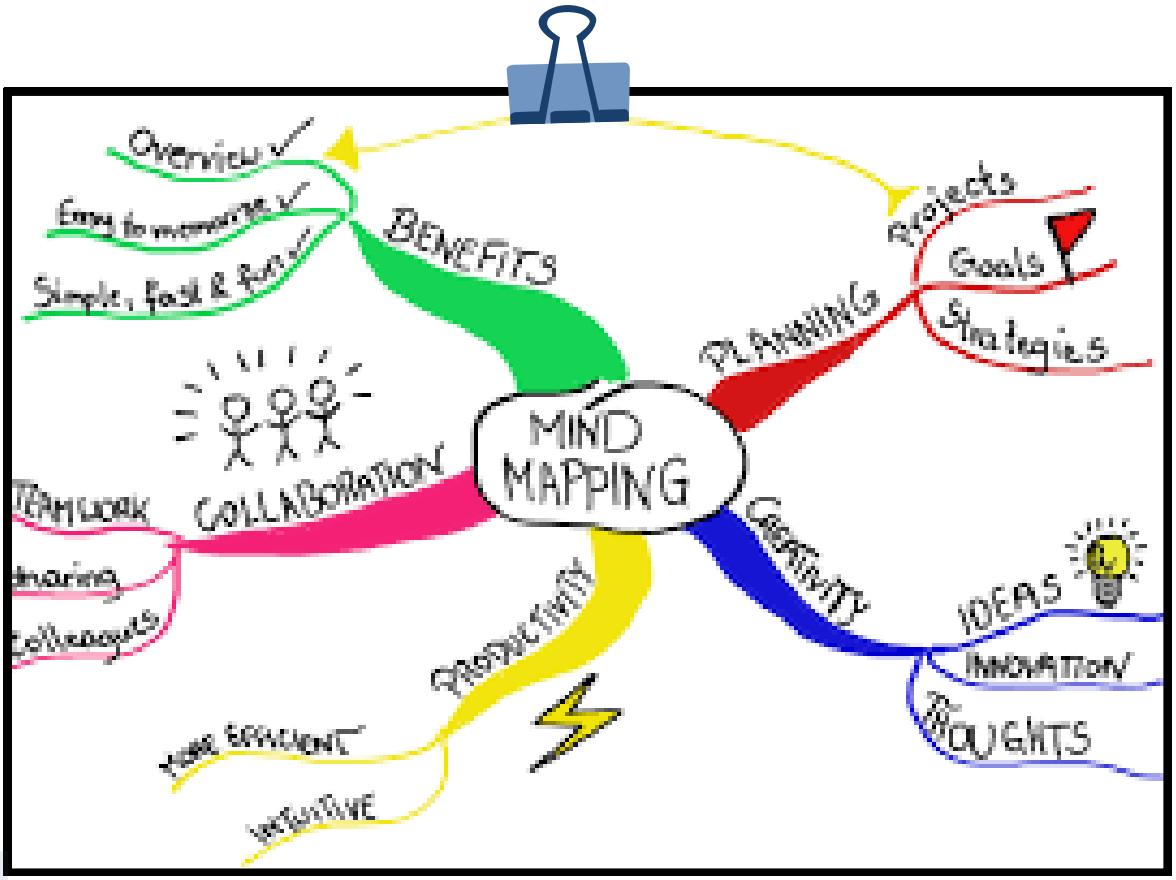
Mind mapping is a visual technique that involves creating a diagram to represent ideas, concepts, and their relationships. Start with a central idea in the center of a page and then branch out with related ideas, sub-ideas, and connections. Mind maps allow you to see the big picture while also exploring specific details.

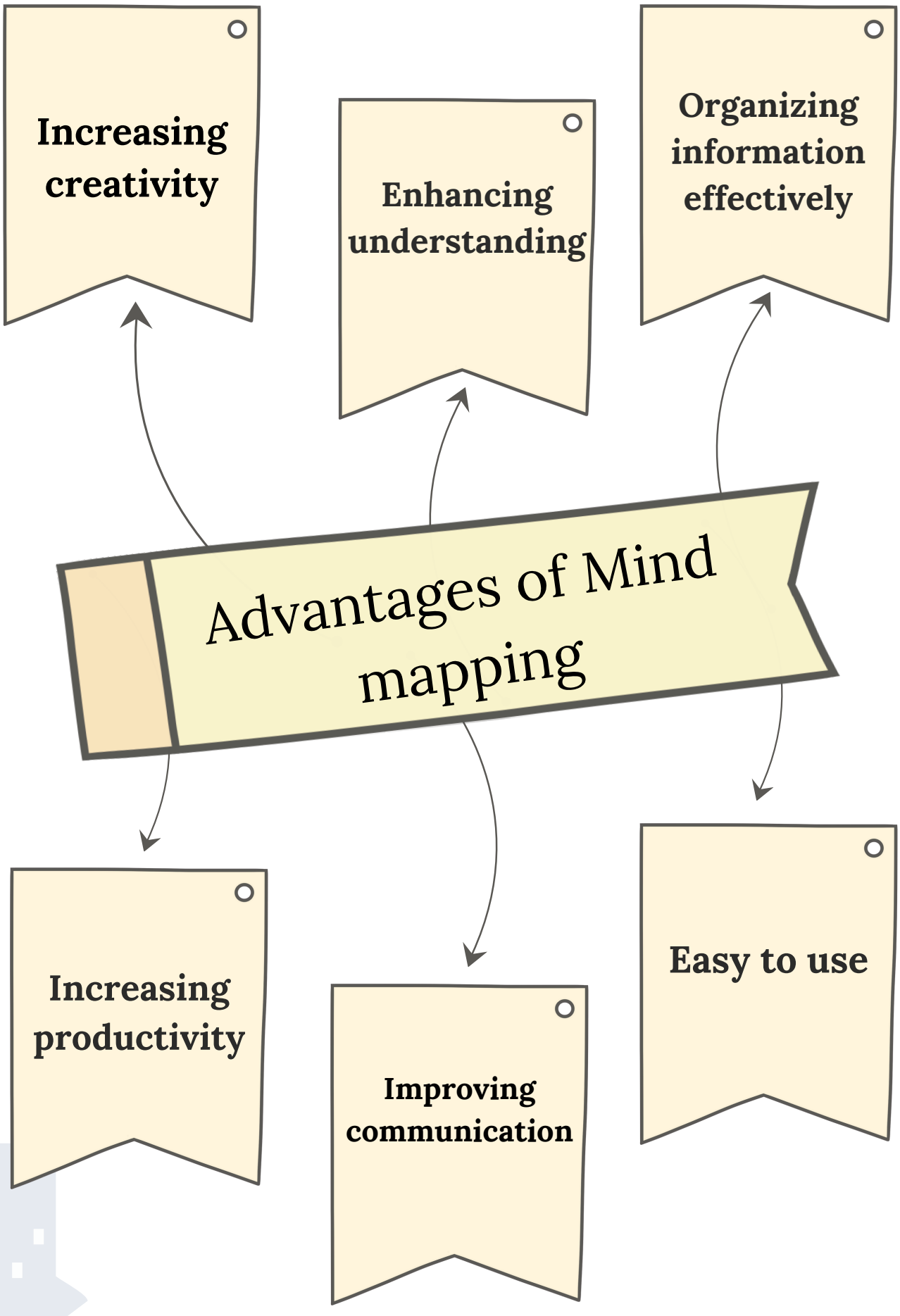




Mindmapping

Mind mapping is a visualization technique used to organize information and ideas. Mind mapping allows someone to capture and connect information in the form of a diagram, consisting of a main center and interconnected branches with relevant topics or sub-topics. Mind mapping is also commonly used as a tool for planning or problem-solving, as well as for enhancing creativity and memory. This technique was introduced by Tony Buzan in the 1970 and now become popular among students, professionals, and anyone who wants to improve their ability to organize and comprehend information.




Advantages of Mind mapping
Increasing creativity
Enhancing understanding
Organizing information effectively
Increasing productivity
Improving communication
Easy to use

Activity

ACTIVITY: MINI PROJECT - CREATIVE PROBLEM SOLVING

- **TASK**: STUDENTS WILL IDENTIFY A REAL-WORLD SOCIAL OR ENVIRONMENTAL PROBLEM (E.G., POLLUTION, URBAN POVERTY, FOOD WASTE MANAGEMENT) AND USE AT LEAST TWO CREATIVE THINKING TECHNIQUES, SUCH AS BRAINSTORMING OR MIND MAPPING, TO PROPOSE INNOVATIVE SOLUTIONS. THEY MUST SUBMIT A REPORT (500 WORDS) EXPLAINING HOW THESE TECHNIQUES AIDED THEIR IDEATION PROCESS.

- **OBJECTIVE**: DEVELOP STUDENTS' CREATIVE THINKING SKILLS AND FAMILIARIZE THEM WITH PRACTICAL PROBLEM-SOLVING TECHNIQUES.

- **INTERACTIVE ELEMENT**: AFTER SUBMITTING THEIR REPORTS, STUDENTS WILL ENGAGE IN A WORKSHOP WHERE THEY USE DESIGN THINKING TOOLS TO REFINE THEIR SOLUTIONS, WORKING TOGETHER IN GROUPS TO VISUALIZE AND PRESENT IMPROVED VERSIONS OF THEIR IDEAS.

1.5 SIX THINKING HATS

- Six Thinking Hats
- Activities

1.5 SIX THINKING HATS

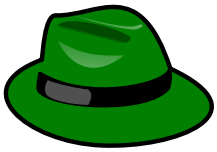
The Six Thinking Hats is a problem-solving and decision-making technique developed by Edward de Bono. It encourages participants to look at problems and decisions from multiple perspectives, using metaphorical "hats" to represent different modes of thinking. This structured approach helps individuals or teams to think more effectively, minimize conflict, and generate well-rounded solutions.

WHITE HAT (FACTS AND INFORMATION):
FOCUSES ON OBJECTIVE DATA, FACTS, AND FIGURES. IT EMPHASIZES GATHERING AND ANALYZING RELEVANT INFORMATION WITHOUT EMOTION OR INTERPRETATION.

RED HAT (EMOTIONS AND INTUITION):
REPRESENTS FEELINGS, EMOTIONS, AND INTUITION. THIS HAT ALLOWS PARTICIPANTS TO EXPRESS THEIR GUT FEELINGS AND EMOTIONAL REACTIONS WITHOUT THE NEED FOR JUSTIFICATION.

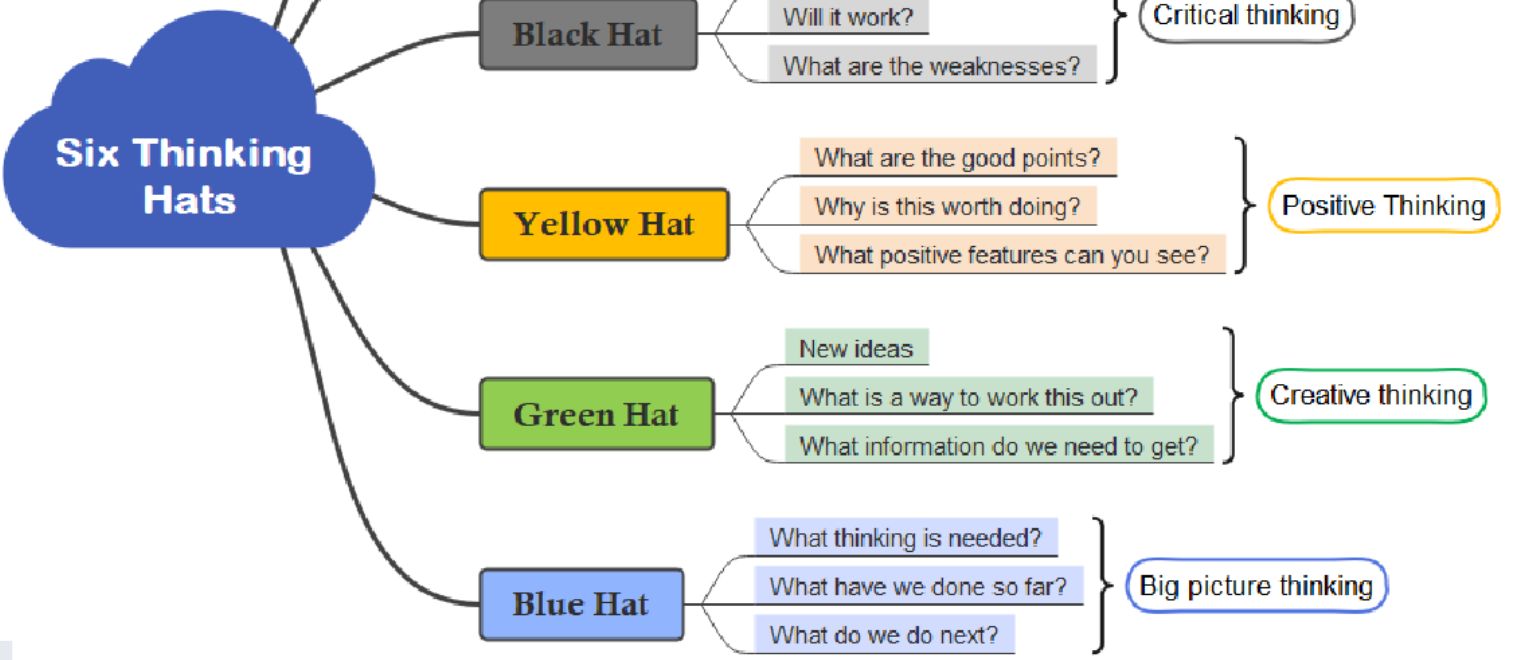
BLACK HAT (CRITICAL JUDGMENT):
INVOLVES CAUTION AND CRITICAL THINKING. THIS HAT IS USED TO IDENTIFY RISKS, OBSTACLES, AND WEAKNESSES IN A PLAN OR IDEA, FOCUSING ON WHY SOMETHING MIGHT NOT WORK.

YELLOW HAT (OPTIMISM AND BENEFITS):
SYMBOLIZES POSITIVE THINKING. IT FOCUSES ON IDENTIFYING THE POTENTIAL BENEFITS, OPPORTUNITIES, AND ADVANTAGES OF A PLAN OR IDEA.



GREEN HAT (CREATIVITY AND NEW IDEAS):
ENCOURAGES CREATIVE THINKING, INNOVATION, AND THE EXPLORATION OF NEW IDEAS AND SOLUTIONS. IT IS ABOUT THINKING OUTSIDE THE BOX AND EXPLORING POSSIBILITIES.

BLUE HAT (PROCESS CONTROL AND ORGANIZATION):
THIS IS THE "THINKING ABOUT THINKING" HAT. IT MANAGES THE PROCESS AND ENSURES THAT THE DISCUSSION FLOWS SMOOTHLY BY ORGANIZING THE USE OF THE OTHER HATS AND KEEPING THE GROUP ON TRACK.


Six Thinking Hats
White Hat
What are the truth or facts?
What information do we need?
What information do we need to get?
Focusing on purely the facts
Red Hat
What do I feel about this?
How do I react to this?
Emotions, intuition
Emotional thinking
Black Hat
What is wrong with this?
Will it work?
What are the weaknesses?
Critical thinking
Yellow Hat
What are the good points?
Why is this worth doing?
What positive features can you see?
Positive Thinking
Green Hat
New ideas
What is a way to work this out?
What information do we need to get?
Creative thinking
Blue Hat
What thinking is needed?
What have we done so far?
What do we do next?
Big picture thinking

Activity

Lest Sing Along

[VERSE]
PUT YOUR THINKING CAPS ON
LET'S DIVE INTO THE GROOVE
ONE HAT FOR EVERY THOUGHT
TIME TO MAKE A MOVE

[CHORUS]
CREATIVE MINDS UNITE
COLORS FLYING HIGH
IMAGINATION IN SIGHT
REACHING FOR THE SKY

[VERSE 2]
BLUE HAT LEADING THE PLAN
WHITE HAT FACTS IN HAND
EXPLORE WITH GREEN SO GRAND
YELLOW MAKES IT ALL STAND

[CHORUS]
CREATIVE MINDS UNITE
COLORS FLYING HIGH
IMAGINATION IN SIGHT
REACHING FOR THE SKY

[BRIDGE]
RED FOR FEELINGS WE SHOW
BLACK FOR DOUBTS WE KNOW
EVERY ANGLE WE TAP
SIX HATS MAKE US GLOW

[VERSE 3]
MIX AND MATCH 'EM FAST
IDEAS FLOWING FREE
BUILDING DREAMS THAT LAST
IN A WORLD OF FANTASY

Activity

Activity: Six Thinking Hats Group Discussion

Objective:
Enhance creative thinking and decision-making by exploring a topic from multiple perspectives using the Six Thinking Hats framework.

Materials Needed:
Flip chart or whiteboard
Markers (optional: color-coded hats or cards)
Sticky notes (optional)
Timer

Preparation:
Select a Topic: Choose a relevant topic or problem for discussion.

Introduce the Hats:Explain the purpose of each hat:

White Hat: Facts and information.
Red Hat: Emotions and intuition.
Black Hat: Risks and negative aspects.
Yellow Hat: Benefits and opportunities.
Green Hat: Creativity and new ideas.
Blue Hat: Process management and summarizing.

Activity

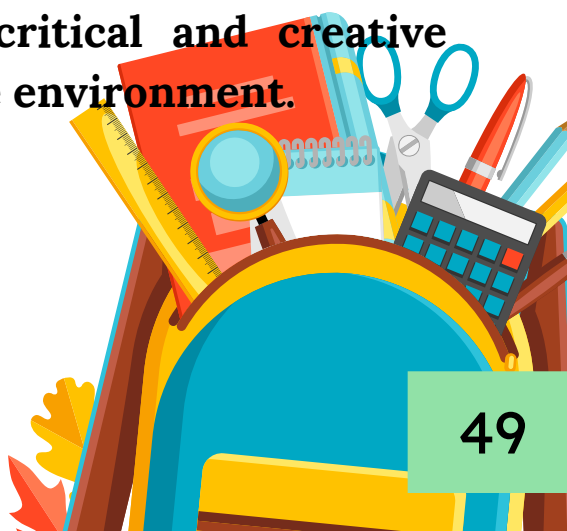
Procedure:

1. Divide into Groups: Form small groups (4-6 people) and assign each group one hat.
2. **Hat Discussions:** Groups discuss their assigned perspective for 10-15 minutes, recording key points.
3. **Rotate Hats:** Groups rotate hats and discuss a new perspective until all hats have been covered.
4. **Final Discussion:** Reconvene and share insights, focusing on new ideas and challenges identified.
5. **Summarize Findings:** Use the Blue Hat to summarize key points and outline action steps.

Expected Outcomes:

- Deeper understanding of the topic through diverse perspectives.
- Enhanced creativity and collaboration.
- Improved decision-making skills.

This streamlined activity promotes critical and creative thinking while fostering a collaborative environment.



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Creative THINKING

Unleash the Power of Your Imagination

Creative Thinking: Unleash the Power of Your Imagination emphasizes the importance of active learning, collaboration, and reflection. It promotes a classroom culture where creativity can thrive, enhancing both teaching effectiveness and student engagement. The content focuses on practical applications, helping students and educators connect creative thinking with real-world outcomes, making it a valuable tool in the academic journey.

This book is a guide for fostering a learning environment where creative ideas flourish and innovative solutions emerge. It is an invitation to explore the boundless possibilities of imagination in the pursuit of knowledge and progress.

Raz Zarinda binti Mohd Rashid is an accomplished educator with a strong background in fostering creative and innovative thinking. She has won several innovation awards for her contributions to education, reflecting her commitment to enhancing teaching methodologies and student engagement. In addition to her work in the field, she has published numerous research papers and authored several books related to research and innovation, making her a respected figure in the academic community.

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- Bachelor of Food Technology with Honour, Universiti Sultan Zainal Abidin (UniSZA)

M**ohd Firdaus bin Mamat Junoh** is a Lecturer in the Department of General Studies, PTSN. His work in this book, **Creative Thinking: Unleash the Power of Your Imagination**, draws on his experience in technical and vocational education (TVET) and his dedication to helping students develop critical and creative thinking skills. As a lecturer who thought the **Thinking Skills** subject at Politeknik Tun Syed Nasir, he has been instrumental in developing curricula that integrate creativity and innovation, ensuring students are well-prepared for real-world challenges. His collaboration with the Curriculum Division, Department of Polytechnic and Community College Education, and the Asasi TVET Program has further enriched this book, providing a practical and theoretical foundation for educators and students.

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