



INTRODUCTION TO CREATIVE THINKING

INTRODUCTION

INTRODUCTION

Leadership at all levels is involved with tackling existing problems and anticipating threats and opportunities that may emerge for the organization and affect the attainment of its goals. Rarely are those problems identical thus leaders require novel approaches. Consequently, solutions to complex or wicked problems require creativity and innovation from members of an organization if it is to adapt and thrive in a competitive landscape.

INTRODUCTION

A commonly-used definition of creativity is the ability to produce novel ideas that are valued by others. Consequent upon the need to provide new and effective approaches to challenges, creativity is required of individuals, groups, and organizations at the tactical, operational, and strategic levels.

INTRODUCTION

The national security and contemporary operating environments have been characterized as volatile, uncertain, complex, and ambiguous (VUCA).² Operating effectively in this context requires that senior leaders have the sophisticated cognitive skills to match the multiple demands of such an environment. Leaders in the 21st Century must be versatile, agile, and adaptive for their organizations to adapt when necessary and learn quickly.

INTRODUCTION

Creative thinking therefore, is a critical element of strategic thought and is necessary for successful leadership of our military.

Consequently, our senior leaders must be skilled in developing and applying creative strategies to circumstances about which we have limited current knowledge or understanding.

INTRODUCTION

In such a VUCA environment, competitors and future adversaries will seek to gain any potential advantage and will rapidly adapt to changing circumstances. Accordingly, the need for creativity and innovation in the ranks requires our senior leaders to foster an organizational climate which can compete effectively under demanding conditions.

Great things are not done by impulse, but by a series of small things brought together.

- Vincent Van Gogh (1853-1890)

AIM

To Introduce Participants of AWCN
Course 8/2024 to Creative,
Divergent and Convergent Thinking

SCOPE

1. Creativity/Creative Thinking
2. Essential Roles for Producing Creative Solutions
3. Ways to Improve Creative Thinking
4. Convergent/ Divergent Thinking

CREATIVITY



Creativity.

Creativity is the ability to develop new ideas and concepts that are effective in resolving situations at hand.

Creative Thinking

- **Creative thinking is a cognitive process that supports divergent and convergent aspects of problem-solving and decision-making.**
- **Thinking creatively provides a means to identify that a problem exists and, therefore, helps with problem definition.**

Creative Thinking

- It also gives rise to the generation of multiple alternatives and a range of options in this divergent component.
- Through the application of critical (convergent) thinking, the alternatives are analyzed and judged for effectiveness and appropriateness in solving the problem.



OUR COMFORT ZONE

Vertical thinking...

- is logical
- results in unique or few solutions
- is convergent
- is more natural for most of us

Creative thinking...

- is imaginative
- generates many possible solutions
- is divergent
- is lateral

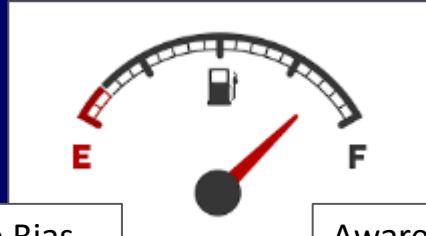


UNDERLYING ASSUMPTIONS

- Everyone is creative.
- Everyone is motivated to solve problems, hence seeks to be more creative and effective.
- There are processes that can improve individual and group creativity.
- Creativity is absolutely essential for effective leadership of organizations.
- Organizational processes that support creativity lead to better long-term performance.



THE BRAIN FUNCTIONS



Cognitive Bias

Awareness

Reason



Reaction

Key Elements Of Creative Thinking.

- Stretching and rejecting paradigms.
- Problem finding
- Selecting relevant information
- Generation, exploration, and evaluation
- Insight and incubation
- Analogical thinking (lateral versus vertical)

Diane Halpern

PROCESS OF CREATIVE THINKING

- Redefine the problem or goals - Phrase the problem in several different ways to produce different types of solutions.
- Find analogies - Apply solutions and ideas across different domains of knowledge.
- List relevant terms - Before attempting a solution, write down all terms that come to mind when you think about a problem.
- Brainstorm - Without censoring or evaluation, list as many solutions to the problems as possible.
- Check lists - Generate and use list of ways that a solution can vary.

PROCESS OF CREATIVE THINKING (Cont)

- List attributes - Create a matrix of relevant attributes and then combine cells.
- Positive, negative and interesting - List the positive, negative and interesting aspects of various solutions.
- Visualize - Imagine yourself as part of the problem and try to see it from other perspective.
- Browse - Keep the problem in mind as you go about idea enhancing activities.

Diane F Halpern and Heidi R Riggio

ESSENTIAL ROLES FOR PRODUCING CREATIVE SOLUTIONS

ESSENTIAL ROLES FOR PRODUCING CREATIVE SOLUTIONS

THE HATS

1. White hat - Neutral - Information - What do we know? What information do we want? What do we need?
2. Red hat - Fire, warmth, feelings, emotion, intuition, hunches
3. Black hat – caution, legality, judgement, morality
4. Yellow hat – sunshine, positive, optimism, benefits
5. Green hat – growth, new ideas, new slants, options, opportunities
6. Blue hat – sky, overview, control of the process, agenda, next step, action plans, conclusions

ESSENTIAL ROLES FOR PRODUCING CREATIVE SOLUTIONS

Four roles - Explorer, Artist, Judge, and Warrior are essential for developing, selecting, and implementing creative solutions to problems. Individuals must consciously assume these roles as appropriate and address the obstacles of personal preferences.

ESSENTIAL ROLES FOR PRODUCING CREATIVE SOLUTIONS(Cont)

The Explorer.

The Explorer is a seeker of information from several sources, always on the lookout for something new and interesting. It is this role that collects information, asks questions, and is always on the prowl.

ESSENTIAL ROLES FOR PRODUCING CREATIVE SOLUTIONS(Cont)

The Artist.

The Artist is the creator that is able to piece together existing ideas in new combinations or to generate new ideas. The Artist is the experimenter who is willing to try out concepts, is willing to fail, and is willing to try again in order to learn from the experience.

ESSENTIAL ROLES FOR PRODUCING CREATIVE SOLUTIONS(Cont)

The Judge.

The Judge applies analysis and evaluation to the ideas in order to decide which problem solution to pursue. This is a role for which many military members have been trained and quickly move to gather the data, assess, decide quickly, and then act is our model of a military leader. But it is also the *third* step in the process; one challenge for successful strategic leaders is to devote time to the specific consideration of the first two roles (Explorer and Artist).

ESSENTIAL ROLES FOR PRODUCING CREATIVE SOLUTIONS(Cont)

The Warrior.

Finally, the Warrior is the implementer of the solution. Through perseverance, passion, and the influence of others, the Warrior is able to follow a plan through to its fruition. This role is the one that military members are the most comfortable with the focus is directed toward accomplishing the mission and overcoming any and all obstacles.

Two Fundamental Challenges Facing A Problem – Solving Team.

- Managing the team and
- Solving the problem.

If leaders fail to understand their own perspectives, as well as the individual and team processes involved, they will never get past focusing efforts on the team dynamics.

Understanding and managing the team is a prerequisite for the team's ability to most effectively and creatively solve the problem.

ROLES FOR EFFECTIVE TEAM PERFORMANCE

- Generate and provide new ideas (innovative, with a vision for the future; creative)
- Serve as a catalyst for group action (inquisitive, extroverted; like to build on the ideas of others)
- Be practical (reliable and conservative; realist that gets work done)
- Be the driving force (dominant, authoritative, decisive; driving toward objectives)
- Be supportive of group members (sympathetic, considerate; draw upon the best from others)
- Consult with others (even-tempered team players)
- Be a critical judge (calm critic; source of quality control), and
- Detail type (meticulous with detail, orderly)

Belbin



WAYS TO IMPROVE CREATIVE THINKING

WAYS TO IMPROVE CREATIVE THINKING

- **Create your “3 ifs” – To anything you see or imagine, ask:**
 - **What would happen if I change it(object/system/relationship)?**
 - **What would I change or improve about this object if I wanted to use it in 10 years time from now?**
 - **What would I do if I had a one-million dollar investment to improve it?**

- **Practise dreaming – Creative thinking is not necessarily the product of IQ or enlightenment. It is a matter of regularly training your imagination, practicing power of observation and dreaming. Don't forget the 3 ifs.**

WAYS TO IMPROVE CREATIVE THINKING(Cont)

- Make time for cohesive creative thinking – Set aside clearly defined time for creative thinking and innovation. (Google asks its teams to allocate at least 20% of their time to creative thinking or new projects).
- Learn to pitch your ideas – Sell them convincingly. Express yourself clearly and excitingly enough to grab peoples attention or help them grasp the nature of your innovation or project. (If you cannot express your ideas in 3 sentences – you don't have an idea).

WAYS TO IMPROVE CREATIVE THINKING(Cont)

- Bounce your ideas off others – You need people around you to discuss new creative ideas and innovations. (Be a good team player capable of bouncing ideas to the next level).

Rafis Abazov

BLOCKS TO CREATIVITY

We may fear:

- **Making mistakes**
- **Looking foolish**
- **Being criticised**
- **Being alone**
- **Being outcast**
- **Disturbing tradition**
- **Being associated with taboos**



CONVERGENT/DIVERGENT THINKING

CONVERGENT/DIVERGENT THINKING

Divergent and convergent thinking skills are the important cognitive processes involved in solving problems (Guilford 1957). Divergent thinking seeks understanding the problem from multiple perspectives and generating multiple solutions. While, convergent thinking is the process of evaluating and selecting the most optimal solution based on some criteria (Basadur 1990)

CONVERGENT/DIVERGENT THINKING (Cont)

The divergent and convergent thinking skills are important in the process of problem solving in all domains where the concepts learned can to be applied to solve real life open problems. Eg - In engineering design process, a designer has to follow a systematic problem solving process having phases- understand the problem, design a solution and implement. By incorporating divergent and convergent thinking in each phase, the outcome can lead to better or innovative solution.

DIVERGENT THINKING

During problem solving, it is assumed that divergent thinking leads to original and innovative ideas. The literature on creative thinking widely uses following sub-skills to assess divergent thinking (Liu 2004, Cooperrider 2008, Runco 2012, Basadur 1990)

1. Fluency: the ability to generate many solutions or ideas.
2. Flexibility: the ability to generate varied ideas.
3. Originality: the ability to generate unusual or novel responses.
4. Elaboration: the ability to elaborate an idea with technical details and concepts.



CONVERGENT

The term convergent thinking was coined by Guilford as an opposite term to divergent thinking. It involves evaluating and selecting the most optimal solution. The sub-skills associated with convergent thinking are (Madhuri 2015)-

1. Selection of accurate solution based on constraints or principles.
2. Pros & cons analysis.
3. Making suitable assumptions.
4. Justifying selected solutions.

DIFFERENCES BETWEEN CONVERGENT AND DIVERGENT THINKING

Convergent Thinking

The process of figuring out a concrete solution to any problem is called Convergent Thinking.

It's a straight forward process that focuses on figuring out the most effective answer to a problem.

Divergent Thinking

Divergent thinking is the process of thinking that explores multiple possible solutions in order to generate creative ideas.

In contrast, divergent thinking refers to opening the mind in various directions and trying out multiple solutions for a problem.

DIFFERENCES BETWEEN CONVERGENT AND DIVERGENT THINKING(Cont)

Its characteristics include

- Speed
- Accuracy
- Logic

Its characteristics include

- Spontaneous
- Free-flowing
- Non-linear

Methods involved in convergent thinking also involve recognizing the previously tried out techniques and reapplying them along with the readily stored information.

Divergent thinking relates to figuring out new procedures to solve a problem despite existing solutions.

DIFFERENCES BETWEEN CONVERGENT AND DIVERGENT THINKING(Cont)

Convergent thinking helps to find out the best possible answer to any problem, which are accurate most of the time, and no room for ambiguity is left.

The answer procured by such type of thinking is either completely right or 100% wrong, which might not always be the best possible way to go about. Convergent thinking only considers the world as Black and/or White, with no other possibilities.

Although Divergent thinking keeps the options open, a completely accurate answer isn't identified.

The world isn't always Black and/or White, and a divergent thinker keeps the options open.

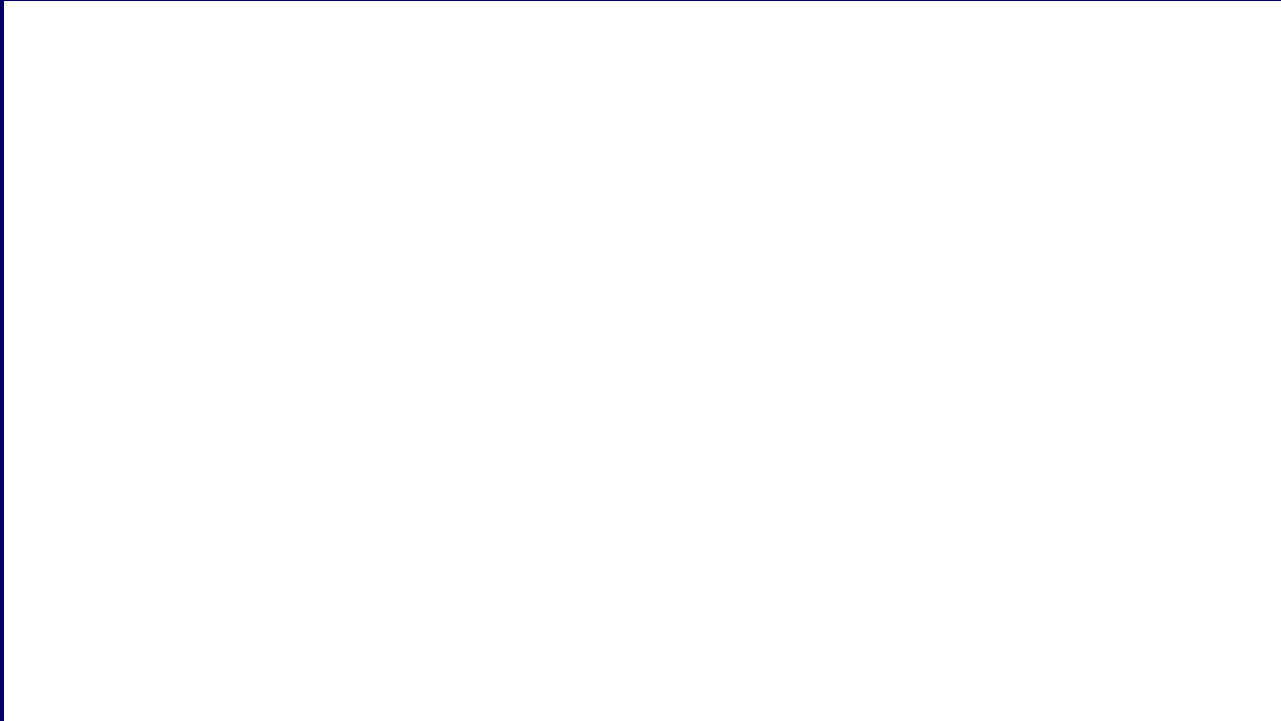
SIMILARITIES BETWEEN CONVERGENT AND DIVERGENT THINKING

- In theory, convergent and divergent thinking are two completely different aspects of thinking.
- Their major purpose is the same. Both these thinking processes are implemented in order to explore creativity and find solutions to different problems.

SIMILARITIES BETWEEN CONVERGENT AND DIVERGENT THINKING(Cont)

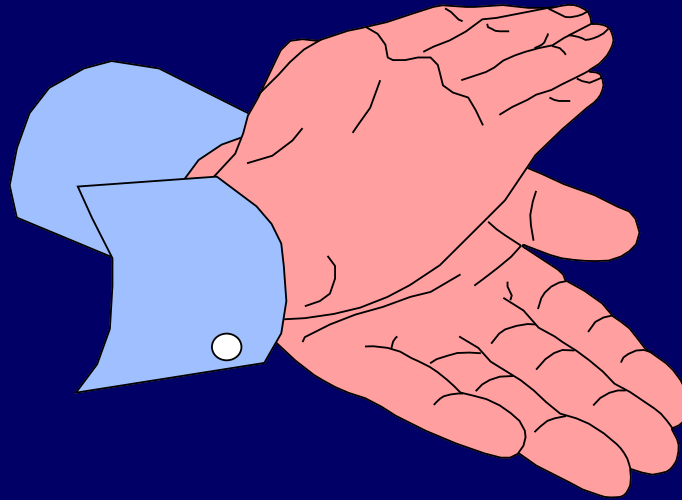
- These processes tend to work best when applied in conjunction. Divergent thinking takes place in a free-flowing, spontaneous manner and creates varieties of possible resolutions to another problem.
- If convergent thinking is applied thereafter, the very best answer can be picked out from the multiple solutions generated due to divergent thinking. In this manner, they are correlated.

FILM





**Thank you for
listening**



References.

1. Allen D, Charles, ***“Creative Thinking for Senior Leaders”***, USAWC, June 2014.
2. Abazov Rafis, ***“5 Ways to Improve Your Creativity”***, <http://www.topuniversities.com/blog/5-ways-improve-your-creative-thinking>, Tuesday, August 11, 2015.
3. Halpeern F Diane and Riggio R Heidi, ***“Review of Skills for Creative Thinking”***, Copyright © 2003 by Taylor and Francis Group LLC Books.
4. Brown Derrick and Kusiak Jan, ***“Creative Thinking Techniques”***, IRM Training White Paper, 2005 – 2007.
5. Psychestudy, ***“Convergent Vs Divergent Thinking”*** in Psychestudy, November 17, 2017.

QUESTIONS?