MODULE 1 : CREATIVITY THEORIES AND MODELS

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1.1 An Overview of Creativity

1.2 Creativity and Genius

1.3 Creative Problem-solving

1.4 Innovation and Creativity

1.1 AN OVERVIEW OF CREATIVITY

Creative talent: the ability to find new solutions to practical problems by untried moves and unused methods, by identifying new relationships

Originality: the ability to think independently and creatively, the quality of being novel or unusual.

Novel idea: a unique idea across all design sessions in a condition

Inspiration: the process of being mentally stimulated to do or feel something, especially to do something creative

Creative Behaviour: the production ideas that are both new and useful

What is Creativity?

The root of the term *creativity* lies in the Latin verb *creare*, meaning to bring something forth, to produce something.

Source: 15 Quotes to Awaken the Creative Inside of You

Timeline Infographic

Although creativity indubitably played a crucial role in human history, the word creativity was documented for the first time in 1875, with a reference to Shakespeare's poetic creativity in Adolfus William Ward's History of Dramatic English Literature (Weiner, 2000, p. 89). The concept of creativity only began to assume its current popularity after World War II and, in fact, the term 'creativity' was not widely used before the 1950s**.**

Source: https://www.nadeenschool.com/what-is-creativity/

- “[…] novel product, idea, or problem solution that is for value to the individual or a larger social group”.

(Hennessey & Amabile, 2010, p. 572)

“The creative work is a novel work that is accepted as tenable or useful or satisfying by a group in some point in time”

(Stein, 1953, p. 311).

“[…] the process of having ideas that have value”

(Robinson, 2011, p. 198)

A creative idea is marked by three attributes: It must be original, it must be useful or appropriate for the situation in which it occurs, and it must actually be put to some use.

(Martindale, 2013, p. 211)

Creativity Theories and Models

1. Wallas Model of Creativity
2. The Four C Model of Creativity
3. Young's Model of the Creativity Process

Wallas Model of Creativity

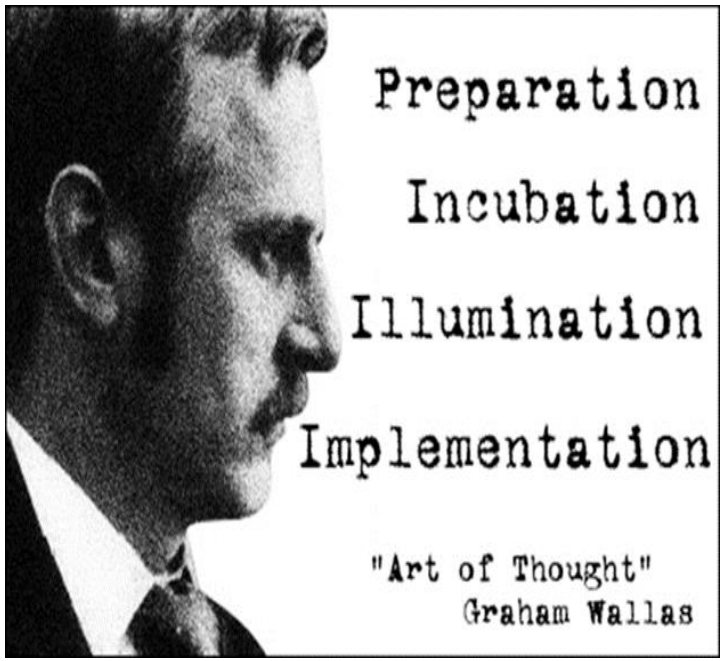
The four stages of creativity are as follows:

Preparation: This stage involves the investigation of the problems in all directions. The problem, need or desire are defined, information is gathered, and criteria is set up to verify the solution's acceptability.

Incubation: This stage involves unconsciously thinking about the problem. The individual steps back from the problem and let his mind contemplate and work it through. This stage, similar to the preparation stage, could last minutes, weeks, even years.

Illumination: This stage involves the appearance of the "happy idea" together with the psychological events. Different from the other stages, illumination is often very brief and involves a tremendous rush of insights within a few minutes or hours.

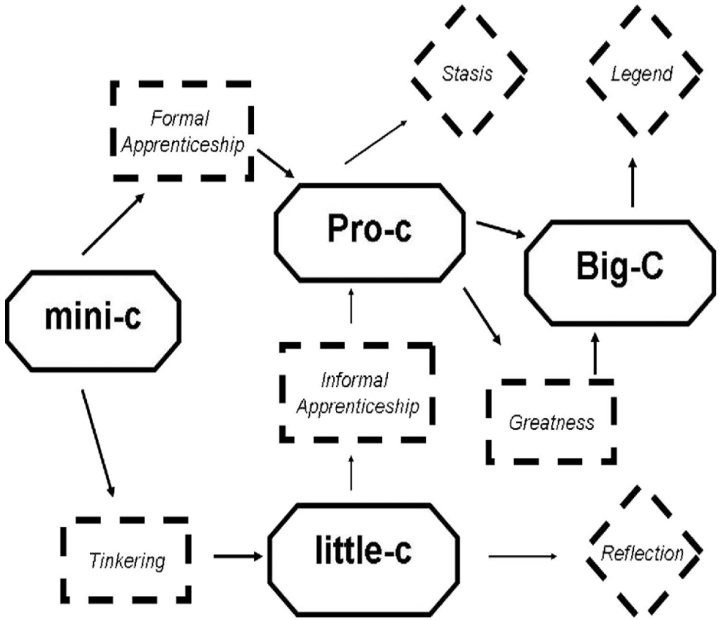
Verification: This stage involves the verification of the results and deduction of the consequences. This stage determines whether what emerged in illumination satisfies the need.



The Four C Model of Creativity

The Four C Model (Kaufman & Beghetto, 2009) offers a useful and whole-life span conception of creativity, running from the everyday creativity that is present in all individuals to the eminent creativity that is found in geniuses. The authors sustained that a level of creativity is involved any time one attempts a new task. The four levels of the Four C model are:

The mini-c level of creativity
The little-c level of creativity
The Pro-c level of creativity
The Big-C level of creativity



Young's Model of the Creativity Process

In its basic meaning, Young believed that the creative process is the act of creating "new" connections from existing concepts.

According to Young, being "creative" is about connecting ideas from what is already available around you. The figure below demonstrates the five-step model.

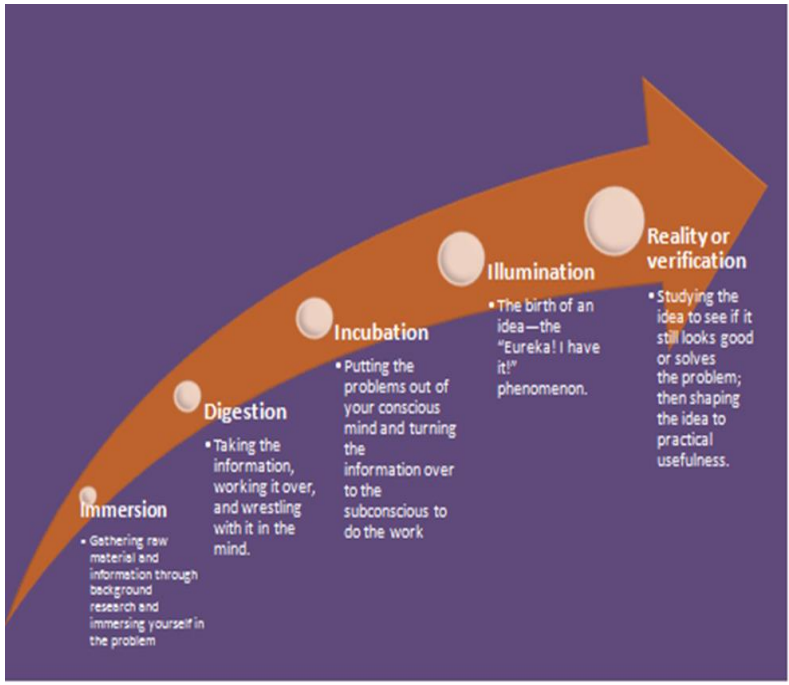
1: Immersion: This step involves gathering background information that is needed to solve the problem through research and study.

2. Digestion: The digestion step involves taking the information and working it over.

3. **Incubation**: This step involves ceasing analysis and putting the problem out of conscious mind for a time

4. Illumination: This step involves the birth of an idea.

5. Reality or Verification: This step involves studying the idea to see if it is a solution to the idea.



KEY CONCEPTS

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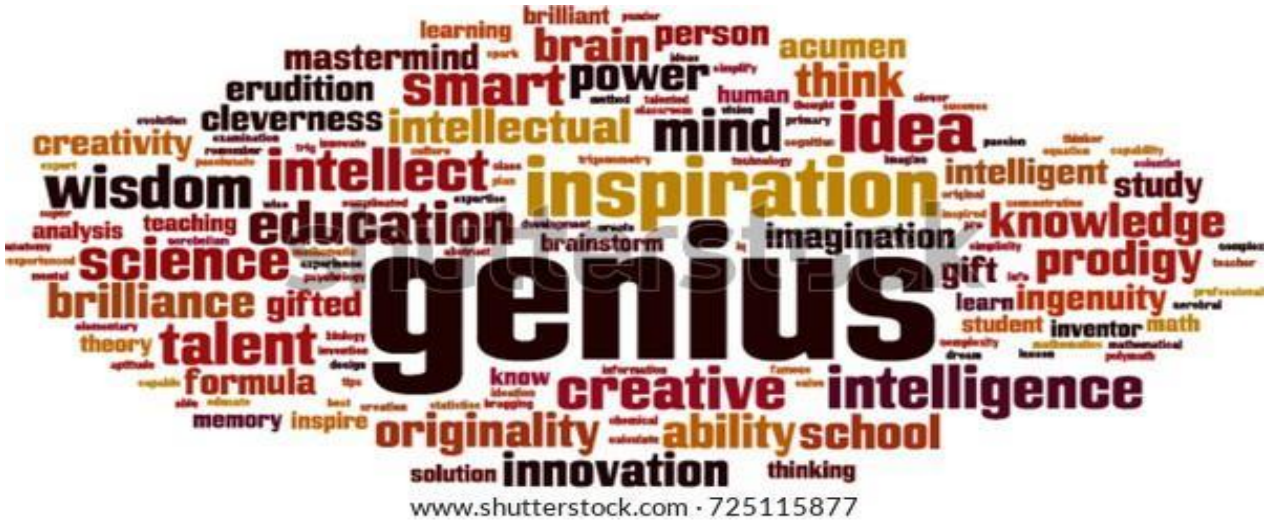
1.2 CREATIVITY AND GENIUS

Intelligence: the ability to acquire and apply knowledge and skills.
IQ (Intelligence quotient): a number representing a person's reasoning ability measured using problem-solving test as compared to the statistical norm or average for their age,
Creative Thinking: intentionally gaining new insights and different ideas through existing **information**. **Abstract Thinking**: the ability to consider concepts beyond what we observe physically.
Genius: an exceptionally intelligent person or one with exceptional skill in a particular area of activity

According to Guilford (1967), above-average intelligence forms a necessary but not a sufficient condition for high creativity. Higher intelligence levels have been associated with high creativity. However, solely intelligence does not guarantee creativity. Some personality characteristics are also hypothesized to have roles. For instance, while openness to experiences predicts creative potential conscientiousness is negatively related to creative potential. Hence, high intelligence and high openness predict creative potential, which, in turn, predicts creative achievement (Jauk et al., 2013).



The current meaning of the word *genius* dates from the eighteenth century. About genius, Richard Gregory (1981) offers two quotes. The first links knowledge with novelty and is from the painter Henry Fuseli, who wrote in his *Lectures on Painting*: “By genius I mean that power which enlarges the circle of human knowledge: which discovers new materials of Nature, or combines the known with novelty.” The second sustains the opposite, and comes from the English novelist Henry Fielding, who wrote in *Tom Jones* (1749): “By the wonderful force of genius only, without the least assistance of learning.”

Characteristics of Genius

Characteristics of Genius are listed below:

They have a curious mind: Excellence can be achieved through a high degree of curiosity. Previously unexplored ideas can be developed through new ways of thinking. Genius people pursue knowledge in almost obsessive manner.

They are abstract thinkers: People who have genius traits think about problems much more dynamically, in an abstract way. Hence, instead of accepting information and facts on face value, they want to test conventional thinking. They also wish to challenge your way of thinking.

They take risks: They want to push boundaries. They do not want to take a safe route, especially when they are close to a discovery. Such attitude put them at risk, yet a ground-breaking work could also happen like this.

Reject Routines: genius may find it hard to conform to a normal routine because their minds are full of ideas and questions. They even continue to work on explorations in their minds when everyone else is asleep.

Assessment of creative potential can be done through tests that measure divergent thinking ability, which is defined by Guilford (1959) as thinking that goes off in different directions. Some examples are as follows:

•The Torrance Test of Creative Thinking TTCT developed by Torrance (1996)

•The Guilford tests developed by Wilson, Guilford and Christensen (1953)

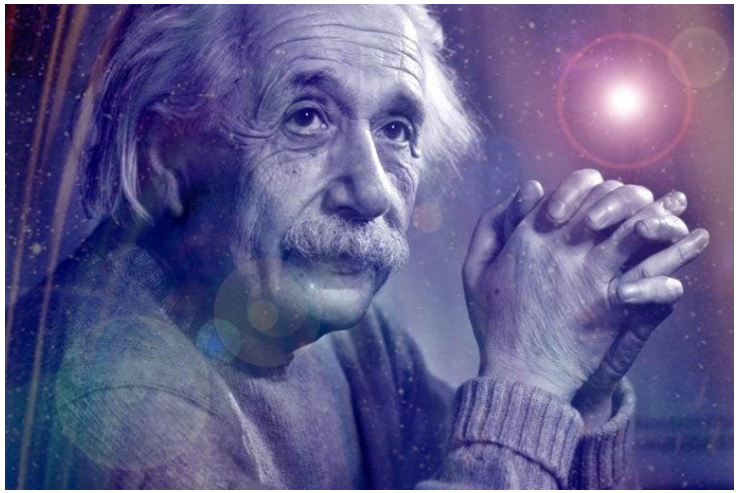
•The Wallach and Kogan tests developed by Wallach and Kogan (1965)

Some Examples of Genius People who Changed Humanity

1. Albert Einstein
2. Leonardo da Vinci
3. William Shakespeare

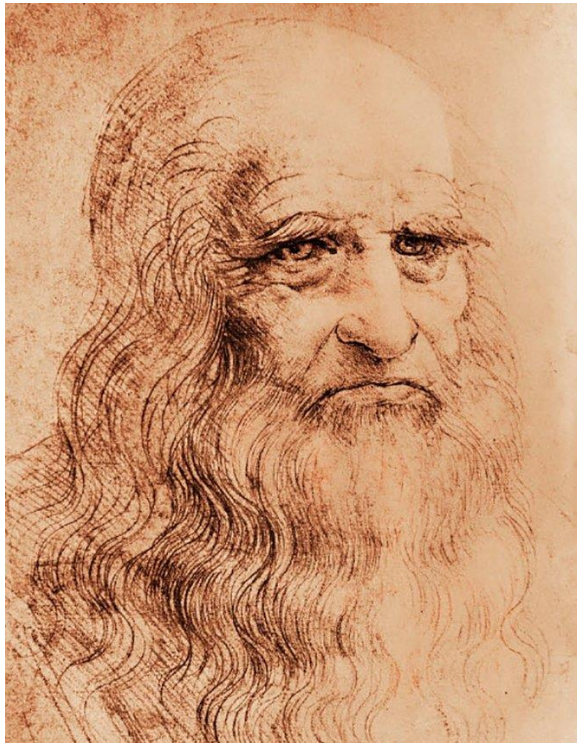
Albert Einstein

Albert Einstein is probably the first person that comes into many people's mind as genious. The German-born physicist was the person who single-handedly redefined science in the 20th century. He developed the theory of relativity, which became one of the pillars of modern physics. He changed our understanding of the universe forever.



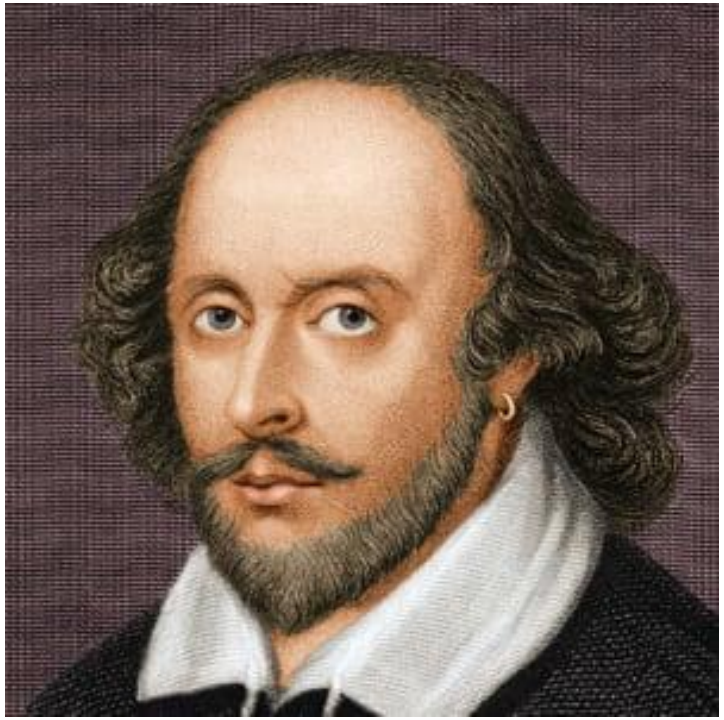
Leonardo da Vinci

Leonardo da Vinci was unique among his fellow geniuses. He had a high level of understanding of concepts and processes that were beyond his time. Things found his piles of notebooks reflected things that took almost five centuries to come to reality.



William Shakespeare

Shakespeare had an almost godlike status. He became the nation's foremost poet and the unchallenged epitome of literary genius. He was also widely regarded as the greatest English-speaking writer and dramatist to have ever lived.



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1.3 CREATIVE PROBLEM SOLVING

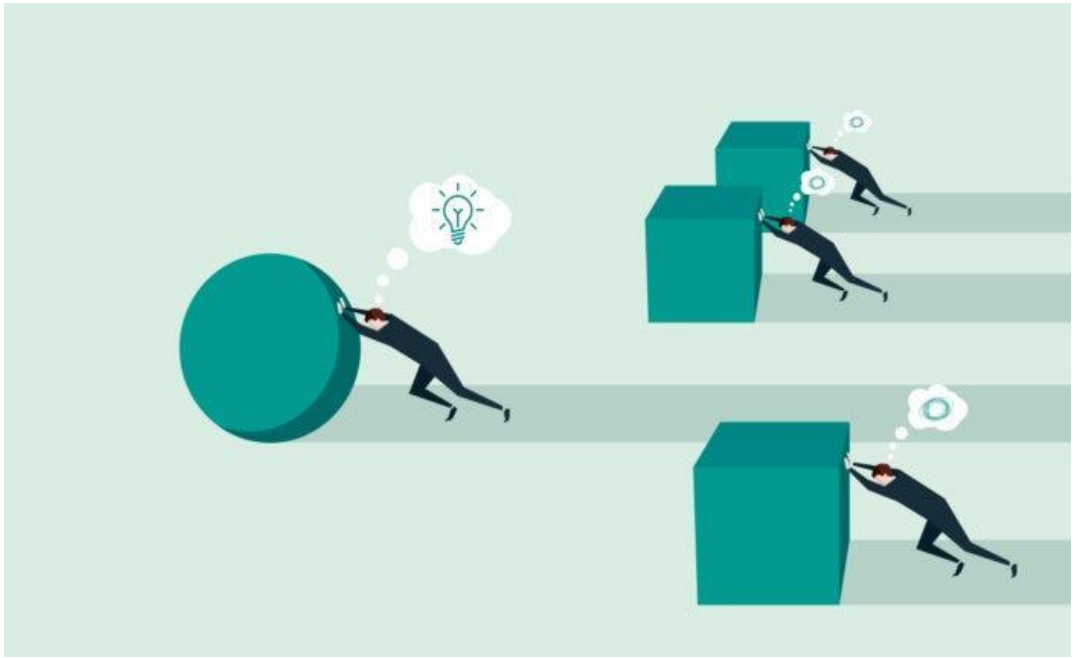
Creative problem solving*:* a way of solving problems or identifying opportunities when conventional thinking has failed.

Productive Thinking: thinking in which a given question is regarded carefully utilizing objectivity as well as respect for the problem as a whole

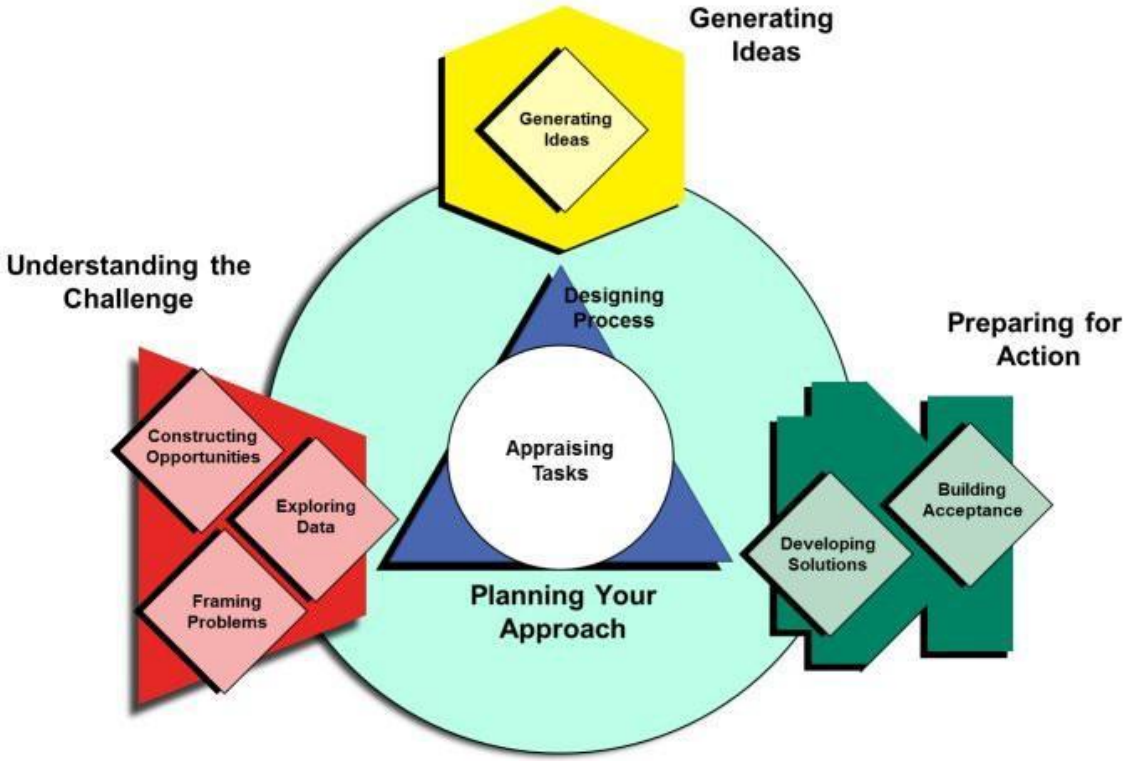
Creative Idea: the result of two or more notions coming together in the mind in order to create an all new notion

Brainstorming: a method of generating ideas and sharing knowledge to solve a particular problem

Creative problem solving (CPS) is a way of solving problems or identifying opportunities when conventional thinking has failed. Sometimes fresh perspectives are needed to come up with innovative solutions in order to formulate a plan to overcome obstacles and reach goals.



Creative problem-solving process as used by highly creative people includes the following steps:
* breaking down a problem to understand it,
* generating ideas to solve the problem and
* evaluating those ideas to find the most effective solutions.



Assumptions of CPS

Some assumptions of CPS are as follows:

*People hold creative potentials

*There are infinite number of ways to express creativity among all people in an extremely broad array of areas or subjects (Torrance and Salter, 1990)

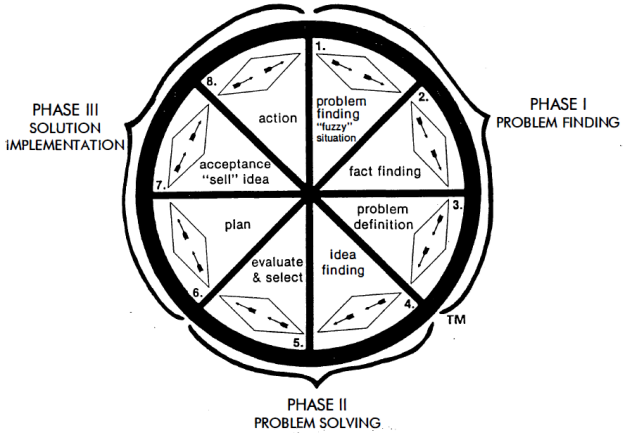
* Creativity is usually approached or manifested according to the interests, preferences, or styles of individuals.

* It is possible for people to function creatively, while being productive or demonstrate different degrees of accomplishment.

*Individuals can make use of their creative styles better and enhance their creative accomplishment levels to realize their creative potentials better.

Basadur's eight steps creativity process

Basadur's research highlighted that employees in a dynamic and effective organization should develop new thinking skills and reframe their jobs, e.g., by becoming creative problem finders and solvers and solution implementers. To this end, organizations should provide a framework for directing these creative thinking skills to support their important goals and objectives.



Teaching Problem-Solving Skills

Model a useful problem-solving method: Problem solving is often difficult and tedious. Students should be taught how to be patient and persistent as well as how to follow a structured method.

Teach within a specific context: The problem-solving skills should be taught in the context where they will be used. Teachers use real-life problems in the explanations.

Help students understand the problem: Students need to define the end goal to be able to solve the problems. Beyond the questions of what and why, finding the answer to how will be easier.

Take enough time: Understanding the problem, defining the goal, dealing with questions, making, finding, and fixing mistakes and solving entire problems in a sing session require time.

Ask questions and make suggestions: Explaining why something happened and asking students to predict what would happen if.. are important components. This is how they develop analytical and deductive thinking skills.

Link errors to misconceptions: Errors can be used as evidence of misconceptions. Determine the misconceptions and correct them.

Teaching problem-solving skills. Centre for Teaching Excellence, University of Waterloo

Benefits of Creative problem-solving

1.Creative problem-solving can provide more innovative solutions. Encouragement of creative thinking and creative problem solving pave the way for more innovative solutions.
2. Creative problem-solving enhances approachability.
3. Creative problem-solving enhances solutions with less bias. Supporting diverse thinking can be effective at providing better and more creative solutions.
4.Creative problem-solving boosts employee engagement. The more creative the workplace is, the more people tend to get creative..
5. Creative problem solving enhances solutions that work. Most solutions, although they seem to be working for the current case, could lose their impact soon.

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1.4 INNOVATION AND CREATIVITY

Innovation: a new idea, method, or device : novelty; the introduction of something new
Curiosity: a strong desire to know or learn something
Divergent Thinking (also referred to as lateral thinking): the process of creating multiple, unique ideas or solutions to a problem
Convergent thinking: the type of thinking that focuses on coming up with the single, well-established answer to a problem

Innovation and creativity are two closely related concepts that are sometimes used interchangeably. Throughout the history, humanity benefitted innovations that changed daily lives in significant ways. The words creativity and innovation refer to both a product of human creativity and to the processes involved in the development of a product. Without innovation and creativity, the world would be quite different today.

What is the relationship between Innovation and Creativity?

Creativity is believed to enhance innovative activities. It is known that an innovation process consists of two main activities, which include creativity and innovation. While novel and useful ideas are included in creativity, implementation of these ideas into new products and processes are included in innovation. Although this sequence seems quite logical and evident, what is experienced in this process actually entails many challenges and obstacles. Hence, maintaining a smooth and balanced innovation process is not easy because innovation processes are multifaceted and characterized by tensions.

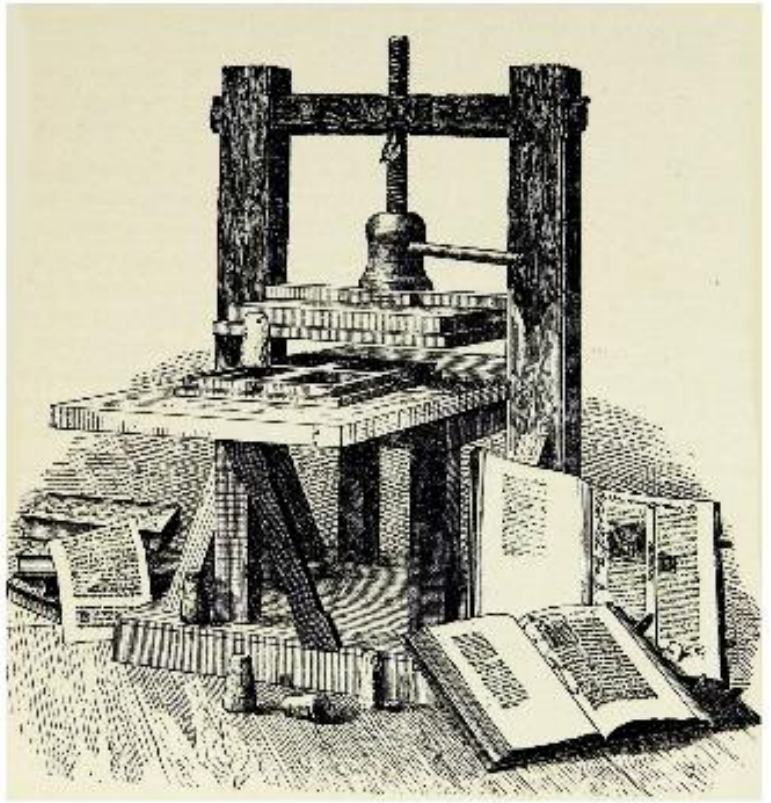
Hunter defines innovation as "Innovation is the implementation or creation of something new that has realized value to others." Innovation is more concrete than creativity as it could be seen in the form of a tool, physical benefit, or aid that solves a problem or creates an advantage. Society has benefited creativity and innovation in the invention of medicine, music, transportation, art, communication, etc. Changes, growth, and innovation in the world have been possible with creativity and innovation.

Some Examples of Creativity and Innovation

1. Printing Press
2. Compass
3. Electric Bulb

Printing Press

Printing press, developed by Gutenberg around 1440, was the most effective innovation I history that made the spread and democratization of knowledge possible.



Compass

Compass was invented in China in the 14th century. The impact of compass on early navigation and exploration was priceless. It provided explorers with a reliable method for traversing the world’s oceans.

Electric Bulb

Before gas or electric lighting were invented, the light source indoors mainly came from the fixed fire in the grate. Home activities had to be done using hearth, with candlelight or oil lamps providing dim (but mobile) light around.

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Infographic Elements