



creativity

innovation

What is Creativity?

Creativity refers to the invention or origination of any new thing (a product, solution, artwork, literary work, joke, etc.) that has value



Creativity is a form of energy starting from 'nothing' and generating great, original and unique values

Creativity is generally accepted in cognitive psychology as the capacity to perform mental work that leads to an outcome both novel and applicable



What is Creativity?



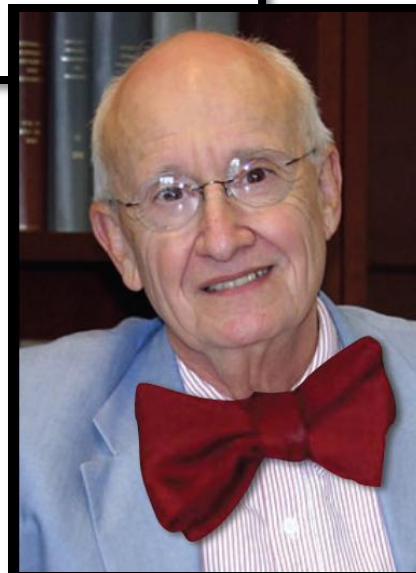
Creativity means
not copying.

Jacques Maximin, chef



Creativity is
effective novelty

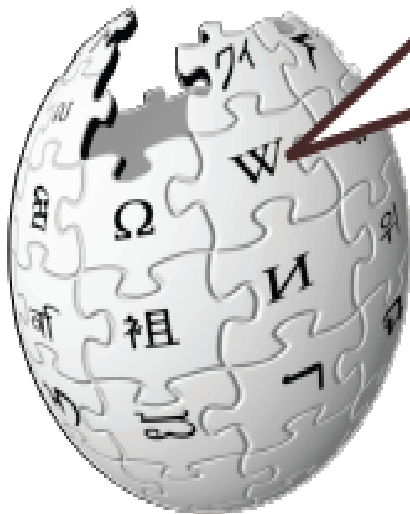
Michele & Robert Root-Bernstein,
Psychology Today



Creativity is
coming up with
something new
by letting go of
convention.

Kenneth Heilman, neurologist

There is no single, authoritative perspective or definition of **Creativity** and there is no standardized measurement technique.



❑ For the purpose of this subject:

“Creativity is the act of turning new and imaginative ideas into reality”

(Von Stamm, 2008)

- ❑ It is about being different, thinking laterally and making new connections.
- ❑ An essential building block for innovation and the point of departure.
- ❑ It cannot be ordered, but relies more on intrinsic motivation.
- ❑ Concerns of many companies:
 - ✓ how to generate more and better ideas?
 - ✓ how to become more creative?
 - ✓ how to inspire employees to become more creative?



A hand is shown on the left side of the slide, placing a white puzzle piece onto a blue wall. The wall is covered with many other white puzzle pieces, some of which are already in place. The background of the slide is a gradient of blue and green, suggesting a sky and grass. The title 'What is Innovation?' is written in large, orange, 3D-style letters at the top of the slide.

What is Innovation?

“Innovation is the development of new customers value through solutions that meet new needs, inarticulate needs or old customer and market needs in new ways”

“This is accomplished through different or more effective products, processes, services, technologies or ideas that are readily available to markets”

- Innovation **differs from invention** in that innovation refers to the use of a better and, as a result, novel idea or method whereas invention refers more directly to the creation of the idea or method itself.
- Innovation **differs from improvement** in that innovation refers to the notion of doing something different.



Innovation vs. Invention

Invention – is the conception of the idea.

Innovation – concerned with the commercial and practical application of ideas or invention. It is the translation of the invention into the economy.

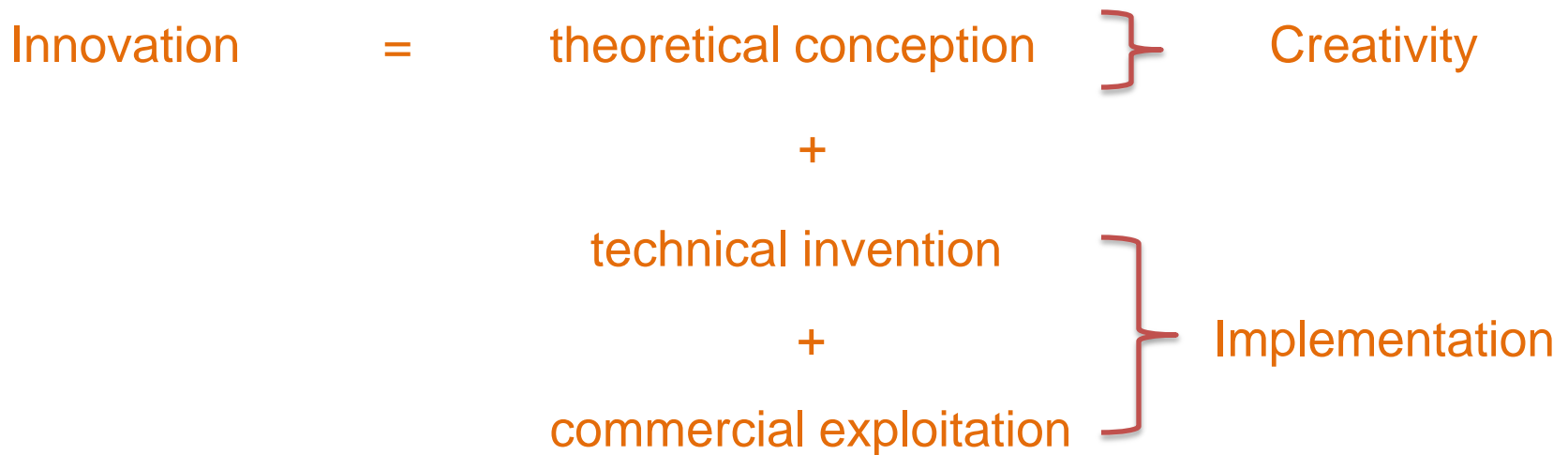
An example of an invention

Scientists and development engineers at a household cleaning products company had been working for many months on developing a new lavatory cleaning product. They had developed a liquid that when sprayed into the toilet pan, on contact with water, would fizz and sparkle. The effect was to give the impression of a tough, active cleaning product. The company applied for a patent and further developments and market research were planned.

However, initial results both from technical and market specialists led to the abandonment of the project. The preliminary market feedback suggested a fear of such a product on the part of consumers. This was because the fizz and sparkle looked too dramatic and frightening. Furthermore, additional technical research revealed a short shelf-life for the mixture. This is a clear example of an invention that did not progress beyond the organisation to a commercial product.

“Innovation is a single process of interrelated sub processes. It is not just the conception of a new idea, nor the invention of a new device, nor the development of a new market. The process is all these things acting in an integrated fashion”

(Myers & Marquis, 1969)



Theoretical conception

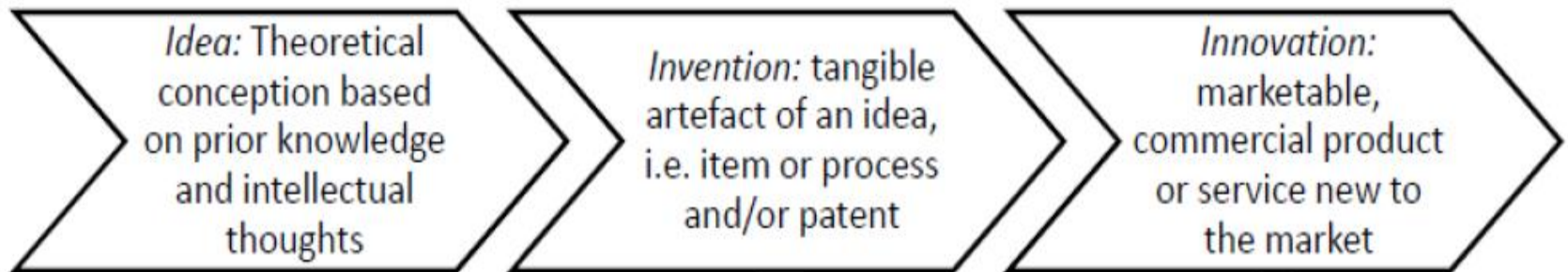
- Involves idea creation and selection, and converts idea into various concepts.

Technical invention

- Converts intellectual thoughts into a tangible artifacts.
- Focuses on concepts which customer perceived as having value.
- Science and technology play a significant role.

Commercial exploitation

- Large-scale production of products and launching them to the market.
- Involves many different people to convert concepts into products that will improve company performance.



Why Study C&I?

- Rapid growth of competition in business and industry
- Develop your potential beyond the boundaries of intelligence – expand on your abilities
- Builds on all disciplines
- Discover new and better ways to solve problems
- Effective use of human resources.

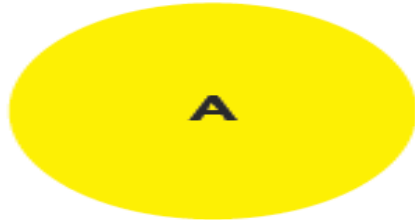


Key Principles of Creativity

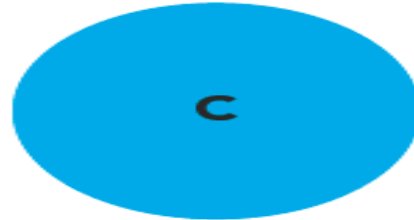
- Everyone is creative
- Individual creativity comes from the expression of individual authenticity
- Team creativity comes from the appreciation and synergistic use of differences
- Playfulness increases the likelihood that creativity will occur
- The more we believe we are creative, the more creative we will be.



Three Creative Elements



Action



Connection



Deviation

Action is about doing things – the act of creation. The original meaning of creation was to make something from nothing.

Connection is the deeper, emotional link that is made with memory, culture, and the human condition.

Deviation is the word scientists use to describe something outside of the norm. In creative terms, this is called originality.

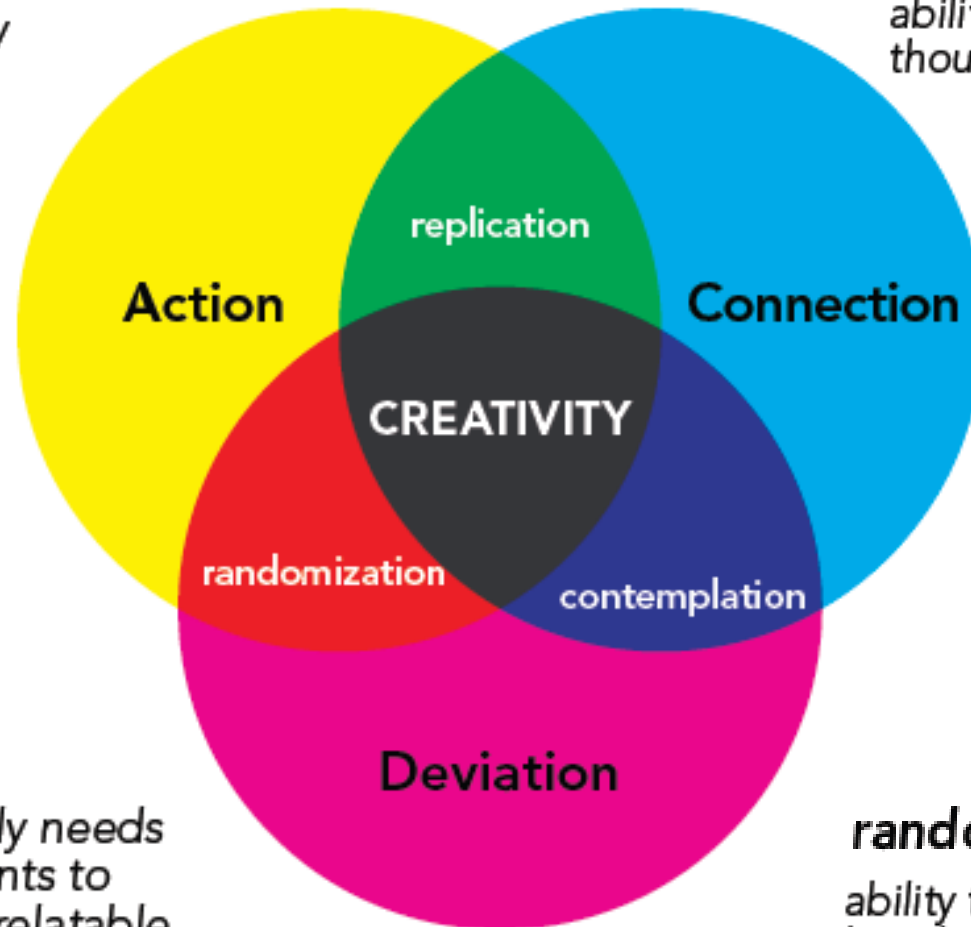
Combining the Elements

replication:

the ability to copy things well.

contemplation:

ability to think original thoughts about things.



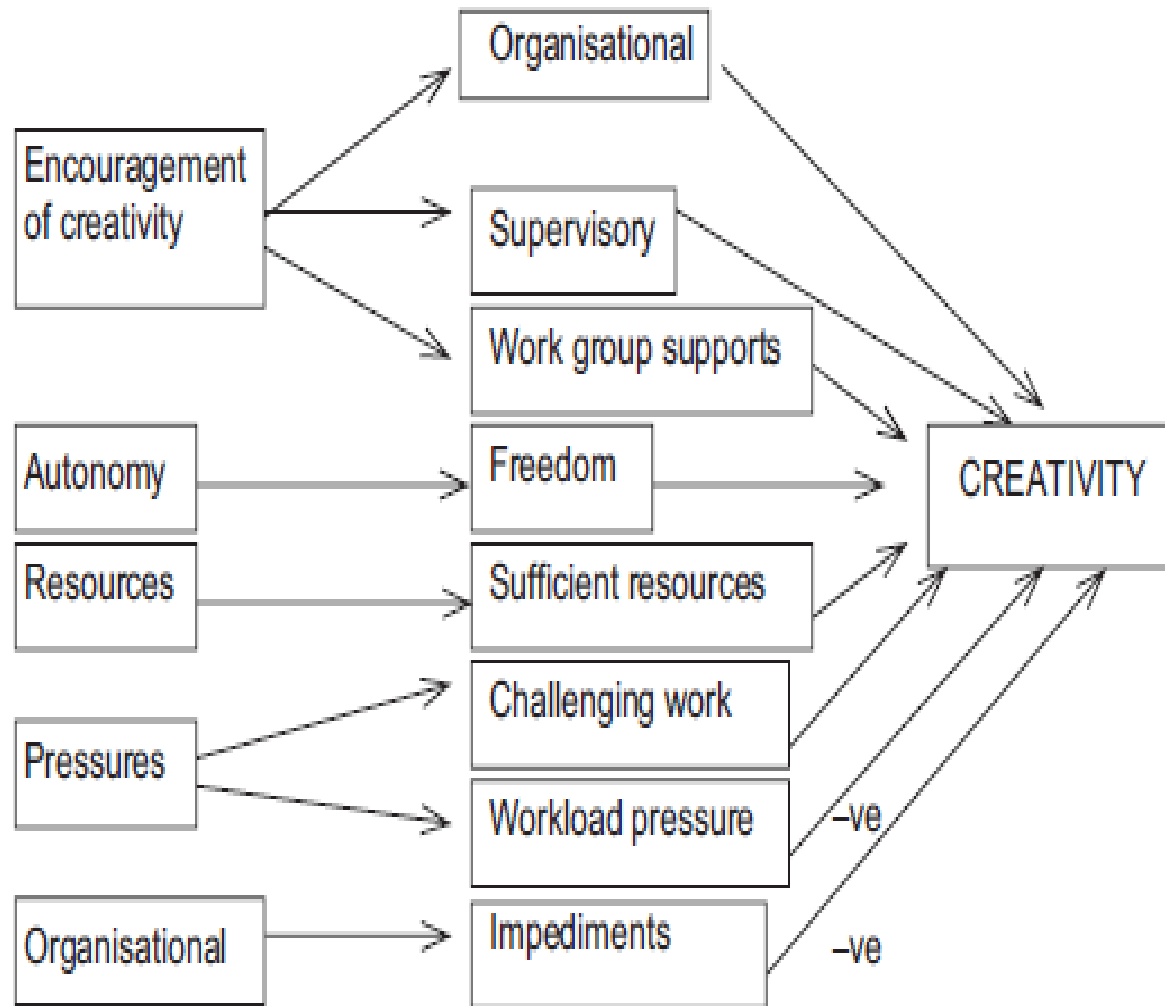
Creativity ideally needs all three elements to make original, relatable ideas come to fruition.

randomization:

ability to make unique but disconnected things.

Environmental Components that Affect Creativity

1. Encouragement of creativity – open information flow and support for new ideas
2. Autonomy or freedom – control over work and sense of individual ownership
3. Resources – materials, information & general resources
4. Pressures – positive challenge and negative workload pressure
5. Organizational impediments to creativity – conservatism and internal strife



Model for assessing the climate for creativity (KEYS).

Source: Amabile, T.M. *et al.* (1996). Assessing the work environment for creativity. *Academy of Management Journal*, 39, 1154–84.

Dimensions of the KEYS®: Assessing the Climate for Creativity Scale

Dimension	Description
Stimulant Scales	
Organizational Encouragement	Measures the extent to which the organization values, rewards, and includes employees in efforts related to creativity.
Supervisory Encouragement	Measures the extent to which managers can effectively set goals, create an environment of open communication, and support their team members' ideas.
Work Group Supports	Measures employee perceptions of the amount of diversity inherent in the team, the degree to which ideas and processes are challenged, the team's openness to novel ideas, and the amount of shared communication and collaboration inherent in the team.
Sufficient Resources	Measures the extent to which employees perceive that all of the appropriate resources for being creative are available. This would include access to such things as "funds, facilities, materials, and information" (Amabile et al., 1996, p.1166).
Freedom	Measures the extent to which employees have autonomy in their tasks and can choose how to conduct their daily work.
Challenging Work	Measures the extent to which employees perceive their work to be meaningful and challenging.
Obstacle Scales	
Workload Pressure	Measures the extent to which employees perceive time pressures to be too constricting and feel that there are unreasonable expectations for performing their work.
Organizational Impediments	Measures the extent to which employees perceive any of the following: they will receive harsh negative feedback on ideas, there will be destructive competition, or the organization does not want to change or take risks.
Criterion Scales	
Creativity	Measures the extent to which employees feel that being creative is an integral part of their job, the functioning of their department, and the functioning of their organization as a whole.
Productivity	Measures the extent to which employees perceive their department, unit or organization to be efficient, effective, and/or productive.

Note: All information in this table is based on Amabile et al. (1996)

Box 1.4 32 traits of creative people

1. Sensitive
2. Not motivated by money
3. Sense of destiny (believe that you have a special mission or purpose in life you plan or hope to fulfil)
4. Adaptable
5. Tolerant of ambiguity (accept multiple answers or causes to a single problem or challenge)
6. Observant
7. Perceive world differently
8. See possibilities
9. Question asker
10. Can synthesize (see the big picture) correctly, often intuitively
11. Able to fanaticise
12. Flexible (willing to try things in many different ways)
13. Fluent (produce lots of ideas or possibilities when working on a challenge or simply choosing a restaurant to go to)
14. Imaginative
15. Intuitive
16. Original
17. Ingenious
18. Energetic
19. Sense of humour
20. Self-actualising (focus on developing yourself to the best you can be and to discover your specific unique talents)
21. Self-disciplined
22. Self-knowledgeable
23. Specific interests
24. Divergent thinker (looks at things in many different ways at the same time)
25. Curious
26. Open-ended (don't fix on a single idea, keep looking for many different ideas or ways to do things)
27. Independent
28. Severely critical
29. Non-conforming
30. Confident
31. Risk taker
32. Persistent

Source: Black, A. (1990). 32 traits of creative people. <http://www.cre8ng.com/newsletter/news02.html> Reproduced by permission of A. Black

Creativity Process

1. Preparation

- ✓ Identification and definition of issue/problem based on observation and study.

2. Incubation

- ✓ A temporary break from creative problem solving.
- ✓ May aid creative problem-solving.

3. Illumination

- ✓ A new solution is emerging – ability to make a new connection between extensive and varied bodies of knowledge.

4. Verification

- ✓ Checking out the applicability and appropriateness of the solution.



- About 70% of the information we use, comes through our eyes.



- Seeing tomorrow's ideas...TODAY

- Creativity is thinking new, Innovation is doing new

*Creativity is thinking up new things.
Innovation is doing new things.*

- Thinking Outside The Box



