Definition of Creativity, Philosophy of Creativity, Lateral Thinking, Traits of Creative People

Definition of creativity

- What is creativity?
- Do we need to define it? Why/why not?
- Which of the following sentences are facts?

Everyone is creative.

Only a few are creative.

Creating something new is essential to being creative.

Creativity can be compared across human beings.

A creative person is creative in everything he/she does.

Creativity can be found in Humanities but not in Sciences.

It is not a systematic and organized process.

Creativity involves creation using old ideas.

Some core skills are required to display creativity.

It is controlled by the right-brain.

It cannot be taught.

Activity

Being creative means…

Being creative in different subject areas

‘Order’, ‘structure’ , ‘harmony’, ‘totality’

Conceptual abstractions - Anne Sullivan

Activity

Think about a moment when you suddenly understood something new.

Now…

Explain something new to one of your classmates.

Hinduism and Creativity

- Waters as the ‘mothers’ of the world- Saraswati - system of sacrifice
- Sacrifice as a creative action
- *Maya* as the cell’s power to create
- Concept of ‘Brahmanda’ -*brahma* + *anda* - universal cell
- Similarity with explanations in science
- Trinity and Prajapati
- Brahman (*Purusha*) and 5 creative energies: *Atma, Buddhi, Chittam, Shunya, Prakriti*
- Mind - characterised by ‘desire’ - creative energy- practice of ‘Tapas’
- Creation- completeness dilemma

- Yoga: divine and physical
- Conditions in the environment can’t generate creativity
- Hindu view (reinterpretation/ a new point of view) vs. Western view (breaking a tradition)

http://www.bbc.co.uk/religion/religions/christianity/beliefs/creationism_1.shtml

Creativity in Christianity

- Pre-Christian beliefs: mystical powers - Greeks and individual ability - Plato: impossible to create anything new - Aristotle: *madness* and *frenzied inspiration* - male chauvinism and inheritance of creativity
- Early Christian beliefs: creation as a divine gift - man, woman, Jesus - *children of God* - *a discovery of power to create* - special talent or unusual ability as the manifestation of a higher spirit - Renaissance
- Process: God or the Holy Trinity pour out themselves out of love - creation before Him - creation = an ‘other’ - creation as a ‘covenant’ - commitment-bond-contract - Noah, Abhraham, Moses, etc. - faithfulness and obedience in return - creation as the spiritual ground for redemption

(Sources: **The Cambridge Handbook of Creativity** edited by James C. Kaufman, Robert J. Sternberg and **God's Creativity and Human Action: Christian and Muslim Perspectives** edited by Lucinda Mosher, David Marshall)

Creativity in Islam

- *Al- Mo'jam Al -Waseet* (1989: 150) "to create" as"to bring something into being in a way that was not before" - *bid`a* (creation) and *ijtihad* (new solutions to problems) - from *badi* (originator) - uniqueness and originality of creation
- Pre-Islamic: Muhammad's condemnation of idolatry as *bid`a* - Quran (46:9): Prophet Muhammad's message in direct continuity with prophesy - a shared Hadith (Shia and Sunni) condemns innovation
- Both Shia and Sunni commentators' interpretation of innovation - aligning with religious principles - creation of *zikr* - life of the Prophet

(Sources: *CREATIVITY AND INNOVATION IN ISLAM AND THE NECESSITY FOR ITS APPLICATION IN ISLAMIC EDUCATION* and *Innovation and Creativity In Islam*)

Philosophy of Creativity

- Buddha: We are what we think.
- Plato: inspiration → madness, inferior position to knowledge and mastery, Kant: imagination
- Art, mind, science and epistemology
- Popular concepts vs. philosophical theories
- Henry Poincare: ideas swarming- selected few -Mathematical Creation
- Graham Wallas: preparation, incubation, illumination and verification
- Is creativity a virtue?
- Gregory Feist: open to new experiences, less conventional and less conscientious, more self-confident, self-accepting, driven, ambitious, dominant, hostile, and impulsive

- Irrationality and madness → creativity
- Creativity from tradition → social nature
- Darwinian tradition: natural selection : blind stage to selection stage
- Genius in fine arts, not in science
- Creative discovery: creation and discovery
- Creativity is teleological?
- Imagination

(Sources: https://www.sfu.ca/~kathleea/docs/The%20Philosophy%20of%20Creativity%20-%20Gaut.pdf and https://blogs.scientificamerican.com/beautiful-minds/the-philosophy-of-creativity/)

Lateral thinking

de Bono: Lateral thinking is “creativity concerned with changing ideas, perceptions and concepts”.

- Practice
- Logic
- Random method

Think about an idea and write 40 words about it. Exchange. Rewrite. Return. Check.

Write about ‘sorrow’ as a cute little boy.

Motivation, Environment, Technology and Training

- Creativity in one field knowledge varies from that of another, not the motivation behind it - it is a necessity (Carl Jung)
- Teresa Amabile: intrinsic motivation key to creativity: interest, involvement, curiosity, satisfaction and positive challenge - extrinsic motivation detrimental
- Amabile & Kramer: What doesn’t motivate can kill it
- External factors meant to motivate often fail
- Actions should have meaning - constructive feedback helps
- Rewards strengthen creative efforts, not carrots for catching birds
- Good vs. bad pressure- competition, unrealistic demand, challenging work

- A supportive environment important to keep one motivated
- Shared mission-single goal
- Dialogue and collaboration
- Environment encouraging risk-taking, experimentation and accepting failure
- Allowing quiet time and solitude
- Developing prototypes
- Everyone can be creative

(Source: https://2012books.lardbucket.org/books/creating-services-and-products/s09-04-environmental-factors-affectin.html)

- Technology: a hindrance to creativity?
- Evidence supports and opposes
- Operationalizing the variables - a challenge
- Example: reading with e-readers- problem with assimilation
- Technology can promote creative thinking: blogs, wikis, cartoon strips, mind-mapping, games, etc.
- More to do with the approach to use

- Can training improve creativity?
- De Bono: Yes
- Applied NeuroCreativity (ANC): Denmark and Canada
- “a fundamental understanding of the underlying concepts of creativity, combined with real life application, was the most effective approach to train creativity” (Scott et. al., 2004)
- Problem: how one defines creativity and determining what creativity includes/comprises

Barriers to Creative Thinking

- One common set or many sets of barriers?
- One should discover on his/her own: internal or external, real or imaginary
- Historical, biological, physiological, sociological and psychological
- Plato’s claim: history repeating itself → cage-like situation
- Creativity is hereditary
- Brain damage in an accident, some major organ loss
- Social codes of morality stopping you from questioning elders - age, sex, class, caste, gender
- Self-imposed, conformity, not challenging the obvious, evaluating too soon, fear of looking like a fool,

(Source: Systems and Creativity by Prof. Soliman)

Creativity in ‘Self’ and ‘Others’

- Self-reflective loop: self and other
- Difference between the ‘self’ and the ‘other’
- Vygotsky’s theory
- Piaget’s theory: self different from others, ‘others’ may have other views about the world
- Symbols - a bridge connecting self, others and the world
- Child engaged in adult-role playing
- Knowing the creative self - consciousness - metacognitive awareness - beliefs, self-efficacy (Albert Bandura)
- De-centering to re-centering, Creativity in others

(Readings: **Perspectives in Creativity** edited by Irving A. Taylor, Jacob W. Getzels , and The Self and Creativity by Thomas Dowd)

	Completely true	Mostly true	Somewhat true/false	Mostly false	Completely false
	1	2	3	4	5
1. The fear of making a mistake effects many of the decisions I make.	○	○	○	○	○
2. When faced with a problem, I try to look at it from different angles in order to come up with the best solution.	○	○	○	○	○
3. I have complete faith in my capabilities/skills.	○	○	○	○	○
4. If I could, I'd prefer to let other people make difficult decisions for me.	○	○	○	○	○
5. Change in general makes me uneasy.	○	○	○	○	○
6. Making snap or "on the spot" decisions makes me uncomfortable.	○	○	○	○	○
7. When others get stuck, I am able to think of new solutions to problems.	○	○	○	○	○

		Strongly agree	Agree	Somewhat agree/disagree	Disagree	Strongly disagree
		1	2	3	4	5
8.	I don't think it's necessary to come up with new solutions to a problem if the one I've used in the past was successful.	○	○	○	○	○
9.	I believe that no matter what life throws at me, I'll be able to handle it.	○	○	○	○	○
10.	Asking for other people's ideas about how to solve a problem is a sign of a lack of skill on my part.	○	○	○	○	○
11.	Once I've found a solution that I believe will work, I see no point in coming up with more.	○	○	○	○	○

	Exactly like me	A lot like me	Somewhat like me	A little like me	Not at all like me
	1	2	3	4	5
12. I like learning new things.	○	○	○	○	○
13. I get really nervous when I have to make an important decision.	○	○	○	○	○
14. I'm the type of person who thinks "outside the box".	○	○	○	○	○
15. When faced with a difficult problem I tend to get discouraged easily.	○	○	○	○	○
16. I'm not sure if I've done a good job unless someone else points it out.	○	○	○	○	○
17. After I've made a decision, I find myself wishing I had chosen differently.	○	○	○	○	○
18. I enjoy trying new things.	○	○	○	○	○

19. Your company needs to come up with a new ad campaign to sell your latest product and your superior chooses you as project manager. During a brainstorming meeting, your youngest team member (who just got hired and is fresh out of school) comes up with an idea that, although really whacky, could end up being really successful. Unfortunately, the veterans on your team who've had years of experience in marketing don't seem to be too enthusiastic about it. You yourself don't seem to be completely sold on it either, and actually had something completely different in mind. However, this new ad campaign is geared towards a younger audience - just about the same age as the newest rookie - and he/she really seems to be on top of what's hot these days. What do you do?

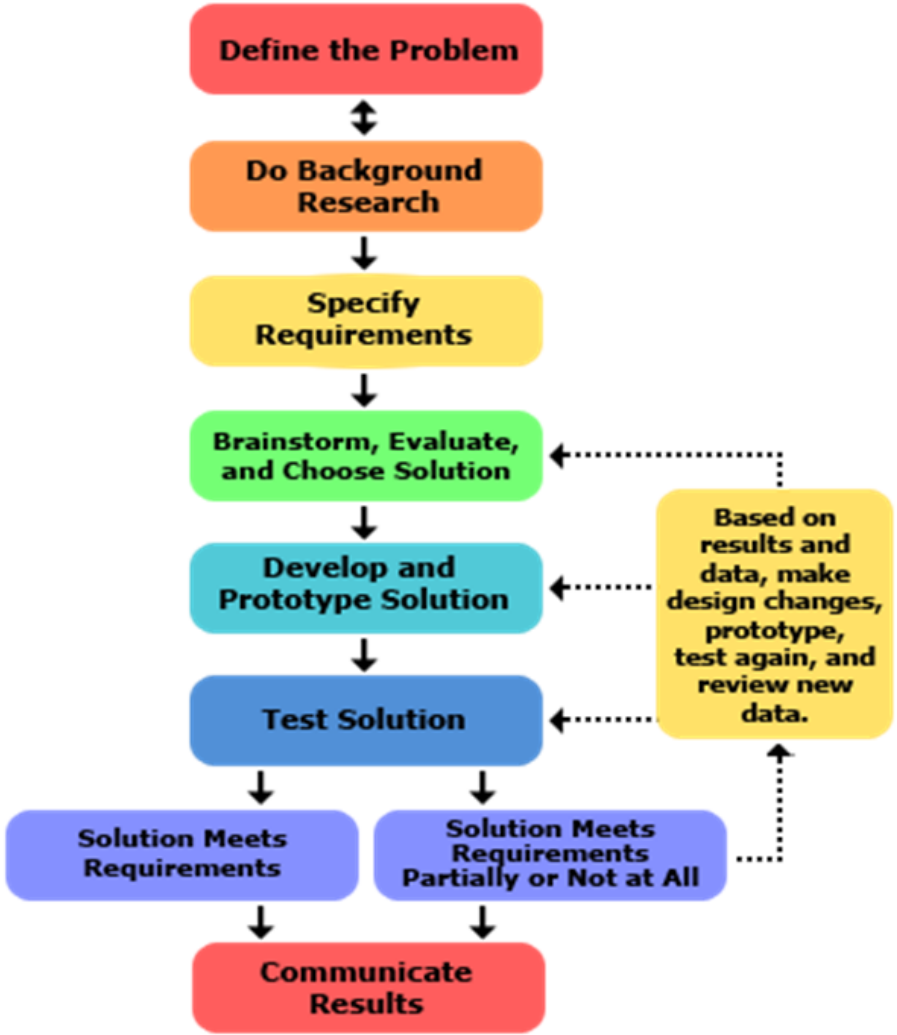
- ○ I thank him/her for his/her idea, but turn it down. I'd rather go with a plan that has proven successful in the past.
- ○ I give him/her a chance to explain his/her idea just to be fair, but I'd probably turn it down.
- ○ I run it through the rest of the team and try to determine the pros and the cons of going with it. Unless the majority of the team supports it however, I won't use it.
- ○ I decide to give his/her idea a try, even if the rest of the team is a little unsure. I'm always open to trying something new.

20. Your work team has recently encountered a problem similar to one you confronted in the past with another company. The solution you came up with at your previous job ended up working out really well. However, while brainstorming together with your current team, they end up coming up with a completely different solution, one that you've never thought of before - and aren't sure will work. How do you react?

- I insist that they use my old solution instead, since it was successful before.
- I ask my team members to seriously consider solving the problem the way my team did in the past.
- I'm concerned about the possibility of failure of their new solution, but I accept that there may be more than one way to solve the problem.
- I feel good about this new idea and look forward to seeing how it will turn out.

Problem-solving Models

1. Linear
2. Generic - creation of articles, systems and environments
3. Action model: continuous refinement
4. Interactive model: moving to different positions
5. Design loop model


Define the Problem
Do Background Research
Specify Requirements
Brainstorm, Evaluate, and Choose Solution
Develop and Prototype Solution
Test Solution
Based on results and data, make design changes, prototype, test again, and review new data.
Solution Meets Requirements
Solution Meets Requirements Partially or Not at All
Communicate Results

a) Determine whether a problem exists

b) Define the problem

c) Research the problem

d) Explore possible solutions

e) Evaluate the pros and cons of possible solutions

f) Choose a solution

g) Devise a plan for implementation

h) Carry out the plan

i) Assess and evaluate the results

j) Evaluate the problem solving process for next time

k) Revise the problem solving process for next time

Problem-solving

- “cognitive processing directed at achieving a goal for which the problem solver does not initially know a solution method” (Mayor, 2013)
- Cognitive → process → directed → personal
- Problem: presence of a goal but not a way to achieve it (Duncker, 1943)
- Recent view: a situation in a given state - one wants it in a goal state - no apparent way to reach, e.g. diagnosis by a physician
- Routine vs. non-routine problems
- Well-defined vs. ill-defined problems
- Process: representation → solution
- Knowledge: facts, concepts, procedures, strategies, beliefs

(Sources: **Problem Solving by** Richard E. Mayer The Oxford Handbook of Cognitive Psychology *Edited by Daniel Reisberg,* https://courses.lumenlearning.com/wsu-sandbox/chapter/problem-solving/)

Approaches to Problem Solving

- **The behaviourist approach: reproductive process -Thorndike - trial-error - Law of Effect**
- Gestalt approach: productive process -

flash insight → solution

- Cognitive approach:

Three hobbits and three orcs arrive at a riverbank, and they all want to cross to the other side. Fortunately, there is a boat available, but, unfortunately, it can carry only two creatures at a time. What really makes the situation complicated is that the orcs are vicious creatures. Whenever there are more orcs than hobbits on one side of the river, the orcs will immediately attack the hobbits and eat them up. Consequently, you should be certain that you never leave more orcs than hobbits on either riverbank. Although the orcs are vicious, they can be trusted to bring the boat back. Your challenge is to move all six creatures across the river without allowing the orcs to eat the hobbits.

There are five possible moves that you can make while working on the problem.

Send one hobbit across the river. Send one orc across the river. Send two hobbits across the river.

Send two orcs across the river. Send one hobbit and one orc across the river.

And, remember, at least one creature must bring the boat back.

Surviving in a room: deciding 10 items

Recreating a place by mute people: picture of a place given

Apply a model of problem-solving to solve each of the following problems. Create a mind-map and illustrate the steps clearly. Justify your approach to problem-solving in each case.

Think critically about the situations given below. Deduce a theoretical statement for each one.

Statement + comment

http://cognitivepsychology.wikidot.com/cognition:problem-solving

https://www.sciencedirect.com/science/article/pii/S1877042815010290