Why creativity matters?

"**Creativity** is a great motivator because it makes people interested in what they are doing.

Creativity gives hope that there can be a worthwhile idea.

Creativity gives the possibility of some sort of achievement to everyone."

Edward de Bono

Problem Solving

The stages

➢ Identification & analysis of the problem

➢ The search for solutions using creativity & other techniques

➢ Assessing solution's feasibility

➢ Implementation

Identification methods

Identification methods

➢ Nominal group

➢ Tell a child

Nominal group technique (NGT)

1. **Introduction** and explanation by facilitator with clarification of purpose (e.g.: seeking to identify problems/issues).

2. **Silent generation of ideas** (10 min)

3. **Sharing ideas** (15-30 min): each idea is recorded on a flip chart using the words spoken by the participant. New ideas can emerge and get added to the list until exhausted.

4. **Group discussion:** participants are invited to seek verbal explanation or further details about any of the ideas. It is important to ensure that the process is as neutral as possible, avoiding judgment and criticism. No ideas are eliminated. (30-45min)

5. **Voting and ranking:** prioritizing the recorded ideas in relation to the original question (1st, 2nd, etc.).

6. Selection of most voted solution.

*used in identification of key problems, but also in solution generation.

Source: https://chess.wisc.edu/niatx/content/contentpage.aspx?NID=147
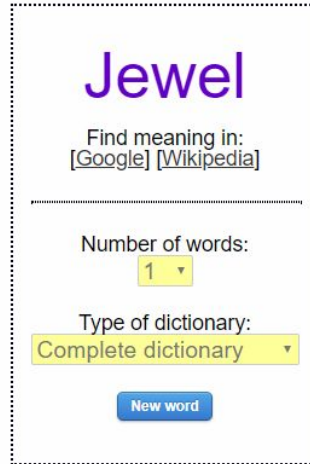
Solution generation methods

Solution seeking methods

- ➢ Brainstorming

- ➢ Words association (+ 2 min. practice)

- ➢ 6 Hats technique

- ➢ Alex F. Osborn checklist technique

Words association

1. Prepare your paper and pen.
2. Think about a problem/issue.
3. Pick a random word from a dictionary/book or a website like random-words (I will do this one for you).

Random words generator in English v1.16

Jewel

Find meaning in:
[Google] [Wikipedia]

Number of words:
1 ▾

Type of dictionary:
Complete dictionary ▾

New word

4. Start writing solution ideas inspired by the word (max. 2 min).

"6 thinking hats" technique

EDWARD DE BONO'S SIX THINKING HATS

Facts - just collecting facts

Brightness & optimism - positiveness, value & benefits

Caution & criticalness - reasons of why something may not work
Do not overuse!

Possibilities & creativities - new ideas, concepts & perceptions

Reviewing your thinking process - making sure all hats have been used

Feelings, hunches & intuition - allowing your feelings come in e.g. happy, terrible, impossible...

Ian | Ozjoe.com

Alex F. Osborn checklist technique

METHOD: **OSBORN´S CHECKLIST**

1. MODIFY
What can you change?
Other use / form / color / odor /
texture / temperature / movement /
meaning / angle / ... ?

2. MAGNIFY
Make it bigger / stronger / larger /
heavier / thicker? Add something?
Value / time / distance / ...?
Multiply? Exaggerate? Intensify?

3. MINIMIZE
Make it smaller / shorter /
lower / lighter / thinner / ...?
Leave out something? Concentrate?
Divide? Create miniature?

4. SUBSTITUTE
Substitute component /
material / ingredient /
method / process / person?
Other places / times?

5. REARRANGE
Opposite / backwards / inverted?
Deconstruct & reconstruct?
Change positive & negative?
Change cause and effect?
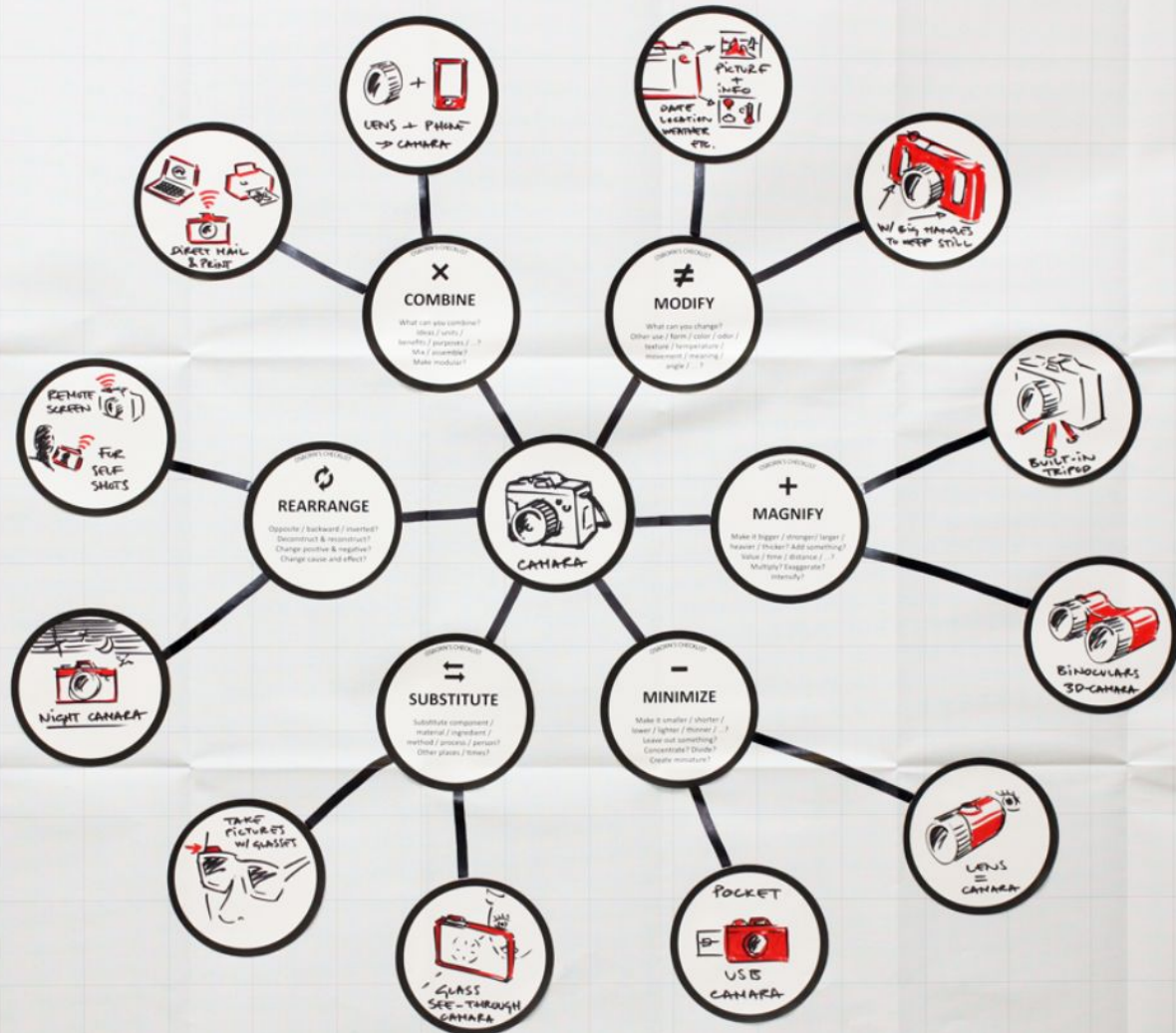
6. COMBINE
What can you combine?
Ideas / units / benefits /
purposes /...?
Mix / assemble? Make modular?

Manual Thinking

Source: Manual Thinking.
Template for print
Map for exercise template.

Example

Feasibility check methods

Simple feasibility check techniques

- +/- interesting

Plus	Minus	Interesting
Sum of scores +	Sum of scores -	Sum of scores + or -

- NAF – Novelty, Attractiveness, Feasibility study

Ideas	Novelty (1)	Attractiveness (2)	Feasibility (3)	Total (1+2+3)
Idea 1				
Idea 2				
Idea 3				
Idea x				

- Value Analysis

Example

Example of Practice

Discipline: Technology

Subject: Computer Systems

Learning goal: Students are required to provide recommendations about whether a user should purchase a new specialized graphics software or continue using the standard version packaged along with the computer system.

Without the Activity	With the PMI Activity		
	Plus	**Minus**	**Intersting**
Students who enjoy working with graphics software for manipulating visual images often recommend their favorite brand. Other users may suggest continuing to use the existing one integrated into the Operating System, and a couple may suggest downloading free software.	+ Increased graphics manipulation functionality for creating beautiful artwork	- Cost of the software. Already have basic version packaged along with the computer system.	i: Rather than paying for software is it possible to rent it for occasional use or maybe lease it rather than buy it
	+ Exports images to different formats for including on websites, phones, etc.	- Need to keep getting updates and patches regularly	i: Compare existing and paid versions of the software to free, open-source applications, and other entirely web drawing software systems
	+ Can work from home instead of at the library or office on computer artwork projects	- Need to keep up with licenses and disks in case re-installation is needed later	i: Purchasing software will allow me to add this to computer skills on my resume
	+ Instead of buying event or greeting cards can create my own	- Need to check system specifications to see if the graphics application will run on the hardware (memory, processor, disk space, etc.) or will those need to be upgraded too. More costs!	i: Is it possible to have software that permits features I like from one application be dropped directly into another, not just the files
	+ The graphics software has multiple versions and also allows for student discounts, plus didn't I see a store coupon somewhere online	- Learning curve of new software is pretty steep	i: Instead of purchasing the software is there a model that permits users to have purchase price refunded after a period of use, or if they invite other users who trial or purchase the software
	+ Learning new stuff is fun especially if can be use both at school and at home	- Will it be able to handle the files I have been working with to date	i: Publishers of software offer auto-update features standard, and no other costs for all future versions of the software

The points in the PMI grid can be assigned +/- weight points, including the entries in the Interesting grid which could have either + or - weighted points assigned to each. An addition of the points will reveal whether the overall recommendation is to purchase the new software or not. Another possible use could be to consider addressing the negative features using some of the interesting points building a stronger case for purchasing the software.

Source.

Value analysis questions

1. Does it contribute value?
2. Are its costs proportionate to its usefulness?
4. Does it have functions that can be divided into sub-functions?
5. Has its requirements changed over time?
6. Does it have all of the needed features?
7. Does it have features that are not needed?
8. Can it be eliminated?
9. Is there a substitute for it?
10. Have subsequent events changed its original purpose?
11. Is its original purpose still relevant?
12. Are its requirements more stringent than currently needed?
13. Is it better done by our organization or by a supplier?
14. Is there a standard part, service, or procedure that can perform its function just as well?
15. Is it overcomplicated?
16. Can minor enhancements improve its performance substantially?
17. Can cost savings be achieved without substantial reductions in effectiveness?
18. Have supplier suggestions been sought?
19. Have user suggestions been sought?

Any questions?

What's next?

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Thank you for your attention!

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