
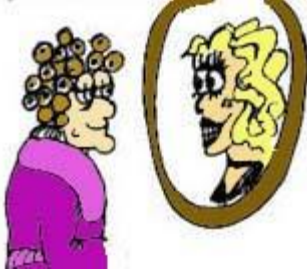


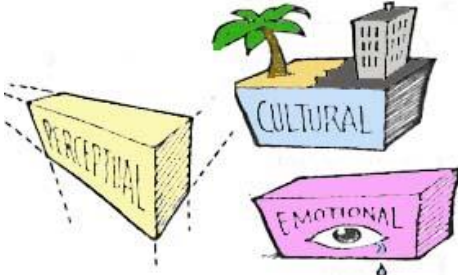






HOME Open-Ended Problems

 A cartoon illustration of a man with a thoughtful expression, holding a quill pen. A thought bubble above his head contains the equation $X=?$. On the desk in front of him are a scroll and a small object.	<p>Write an initial problem statement. Include information on what you are to solve, and consider why you need to solve the problem.</p>
 A cartoon illustration of a woman with curly hair looking into a mirror. The reflection in the mirror is distorted and exaggerated, representing a perceived problem.	<p>Make sure you are proceeding to solve the real problem as opposed to the perceived problem (chapter 3). Carry out one or more of the following:</p> <ul style="list-style-type: none">A. Find out where the problem came fromB. Explore the problemC. Apply the Duncker DiagramD. Use the statement-restatement technique <p>Apply Problem Analysis</p>
	<p>1. Generate solutions (chapter 4)</p>





	<p>Understand what conceptual blocks can occur so that you will be aware of them when they surface.</p> <ol style="list-style-type: none"> 1. Perceptual 2. Emotional 3. Cultural 4. Environmental 5. Intellectual <p>Expressive</p>
	<p>Brainstorm</p> <ul style="list-style-type: none"> • Free association • Osborn's Check List • Lateral Thinking <ul style="list-style-type: none"> ○ Random Stimulation <p>Other People's Views</p>
	<p>Analogy</p> <ol style="list-style-type: none"> 1. State the problem 2. Generate analogies 3. Solve the analogy <p>Transfer the analogy to the solution</p>
	<p>Organize the ideas/solutions that have been generated.</p> <p>Fishbone Diagram</p>
	<p>Cross Fertilize</p> <p>Draw analogies from other disciplines</p>



First Steps in Solving Open-Ended Problems

From [*Strategies for Creative Problem Solving*](#) by H. Scott Fogler and Steven E. LeBlanc, 1995

B.

Futuring. Today's constraints (e.g. computing speed, communications) may be limiting the generation of creative solutions. Think to the future when these constraints may no longer exist. Remove all possible constraints from the problem statement and solution criteria.



D.

Incubate. Take a break. Let your subconscious work on the problem while you do something else. Sometimes all you need is a breather to achieve that final breakthrough!

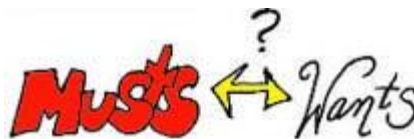


2. Choose best alternative from the ideas generated (chapter 5)

A.

Decision Making

1. Musts
2. Wants
3. Adverse Consequences

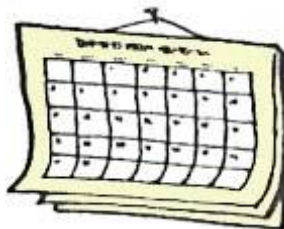


C.



Planning

1. Potential Problem
2. Consequences
3. Preventative Action
4. Contingent Action



4.

Follow Through (chapter 6)

- A. Gantt Chart
- B. Deployment Chart
- C. Evaluation - Is the problem you are solving still relevant?



6.

Evaluate (chapter 7)

- A. Does the solution satisfy all the stated and implied criteria?
- B. Is the solution safe to people and property?
- C. Is the solution ethical?



See an [example of the OEP Algorithm in action](#), as applied to the [Cobra Problem](#) from the [Chemical Reaction Engineering Web Site](#).



[Bloom's Taxonomy](#) can help you classify your problem and determine a method of attack.





[CRE](#) > [Thoughts](#) > [OEP](#) > First Steps

