Brainstorming

XXX 487

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Agenda

• Defining the Term
• Why do brainstorming?
• Preparing to brainstorm
• Secrets of successful brainstorming
• Impediments to successful brainstorming
• Helpful tricks and techniques
What is Brainstorming?

• “The unrestrained offering of ideas by all members of a group to seek solutions to problems.” (Webster’s New World Dictionary. 1987)

• **Unrestrained offering:**
  – no judgment
  – ‘offered’ to the group
  – go for quantity!

• **Ideas:**
  – thought, mental concept, or image
  – could also be an opinion or belief
  – doesn’t have to be proven or backed up with fact or analysis

• **All members**
  – everyone contributes, but not necessarily in order
  – leader responsible for ensuring equal opportunity
Why do Brainstorming?

• Generate new ideas
  – alternative ways of achieving a stated goal
  – innovative design
  – different approaches

• Identify new opportunities
  – new products to meet identified needs
  – new uses for specific technologies
  – new technologies

• Solve ambiguous or complex problems
  – troubleshooting - identify avenues to explore
  – different approaches
Why Do Brainstorming?

- Innovation and industry
Why Do Brainstorming?

• Innovation and Today’s World
What Innovation IS NOT ... 

- New
- The latest ‘buzzword’
- An accident
- A black art
What Innovation IS ...

• Critical to the success of companies

• Key to the success of professionals

• Customer Focused

• Collaborative

• A culture

• A mindset

• A process
Preparing to Brainstorm

• Identify the problem …
  – Focus on *needs*, not *solutions*
  – Problem statement should be focused on current need
  – Problem statement should be broad enough to allow new ideas
  – Examples:
    • Bad – “Develop ways to improve pilot performance in high speed, high performance aircraft.” (unfocused – where do we start?)
    • Better – “Improve visibility through cockpit windshield in high speed, high performance aircraft.”
    • Bad – “Design a windshield wiper that will work at high speed and high altitude.” (narrow – assumes the solution.)
    • Good – “Develop a means of removing precipitation from aircraft at high speed and altitude.”
  – Will require deep knowledge (through experience, research, etc.) of customer/client need

• Explore the world of options, solutions, and alternatives, both related *and unrelated* to your problem area
7 Secrets of Successful Brainstorming*

1. Sharpen the focus
   - Well honed problem statement
   - Focus on customer/client need

2. Playful rules
   - Go for quantity
   - Encourage wild ideas
   - Be visual

3. Number your ideas
   - Keep track
   - Motivation

4. Build and jump
   - “What are other ways to xxx?” (build)
   - “Let’s switch gears and think about xxx now.” (jump)

5. The space remembers
   - Write the flow of ideas down in a medium that is visible to the whole group
   - Cover the walls with paper so that you don’t have to erase or take copious notes
   - Advantages of physical space.

6. Stretch your mental muscles
   - Warm-up exercises
   - ‘homework’ before beginning

7. Get physical
   - Sketch, mindmapping, diagrams, stick figures
   - Bring in ‘show and tell’ items
   - Get up and move!

Impediments to Success (or, “6 ways to kill a brainstorm”)*

1. The ‘boss’ gets to speak first
   • Bosses tend to set the agenda and the constraints on ideas
   • Rule: you’re only allowed if you’re NOT the boss!

2. Everybody gets a turn
   • Going around the group in order stifles the creative process
   • Leader should encourage participation, but naturally

3. Experts only please
   • Invite people from other areas (do you have friends in other majors who might have some ideas?)

4. Do it off-site

5. No silly stuff
   • Kills the fun, and also perhaps some creative paths

6. Write down everything
   • Rapid scribing of the ‘high points’ of the ideas is all that’s needed
   • Too much attention to detail bogs you down

Helpful Tricks and Techniques

• Customer needs tool
• ‘Lens Smashing’
• Mind-mapping
• affinity diagrams
• Others?
# Customer Needs Tool

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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1. What is the customer need?</td>
<td>2. How would they describe it in their own words?</td>
<td>3. Is there another way to phrase it?</td>
</tr>
<tr>
<td>4. How are they meeting this need today?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. What products or services are readily available to meet this need?</td>
<td>6. What products or services are available that can be adapted to meet this need?</td>
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<tr>
<td>7. What products or services can we develop right now to meet the need?</td>
<td></td>
<td>8. What new technologies can or need to be developed to meet this need?</td>
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‘Lens Smashing’

- Bringing two disparate pieces of information together as a catalyst for starting ideation.
- Example:

**Problem statement:** Improve engineering students’ ability to brainstorm new product ideas.

| Observation #1: engineering students know a great deal about analysis of systems. |
| Observation #9: toy manufacturers develop and sell a million new products every year. |
Mind-mapping

• Way of generating ideas that allows them to ‘build’ off of each other.
• Visual representation of how ideas fit together, where they came from, etc.
• Allows for later organization.

• Example:
Affinity Diagrams

• Organize individual observations, ideas, questions, etc. into common themes.
• Provides an opportunity for the group to explore specific themes or classes of ideas more thoroughly
• ‘Affinity’ refers to the degree of commonality within the set
• Steps
  – Write each observation, idea, question, etc. on a separate post-it note.
  – Organize similar items together into groups
  – Does everyone agree on the affinity of each item in each group? If not, reorganize until all are satisfied.
  – Label each group with a descriptive title (‘air-based approaches’, ‘chemical approaches’, etc.)
  – Organize groups together into larger groups
Others?