Creativity Tools - An Introduction

Refs: Mind Tools
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Techniques

☐ Improving a product or service - Reversal and SCAMPER

☐ Creating or improving products, services & strategies:

- Attribute Listing, Morphological Analysis & Matrix Analysis
- Generating many radical ideas
- Brainstorming and Reverse Brainstorming

1

Techniques (cont.)

- ☐ Widening the search for solutions - Concept Fan
- ☐ Looking at problems from different perspectives - Reframing Matrix
- ☐ Making creative leaps - Random Input
- ☐ Carrying out thought experiments – Provocation
- ☐ A simple process for creativity - DO IT
- ☐ A powerful integrated problem solving process – Simplex
- ☐ A powerful approach to creative problem solving - TRIZ

Reversal

- ☐ Reversal is a good tool for improving a product or a service. To use it, ask the opposite of the question you want to ask, and apply the results

Examples

☐ Imagine that you want to improve the response of a service center. Using Reversal you would ask 'How would I reduce customer satisfaction?'. After considering this question you might give the following answers:

- ■ Not answering the phone when customers call
- ■ Not returning phone calls
- ■ Have people with no product knowledge answering the phon
- ■ Use rude staff
- ■ Give the wrong advice

Examples

☐ After using Reversal, you would ensure that appropriate staff members were handling incoming phone calls efficiently and pleasantly. You would set up training programs to ensure that they were giving accurate and effective advice.

3

Reversal – Key points

☐ Reversal is a good, easy process for improving products and services. You use it by asking the exact opposite of the question you want answered, and then apply the results appropriately.

SCAMPER

☐ **Generating new products and services**

■ SCAMPER is a checklist that helps you to think of changes you can make to an existing product to create a new one. You can use these changes either as direct suggestions or as starting points for lateral thinking.

SCAMPER

- □ S - Substitute - components, materials, people
- □ C - Combine - mix, combine with other assemblies or services, integrate
- □ A - Adapt - alter, change function, use part of another element
- □ M - Modify - increase or reduce in scale, change shape, modify attributes (e.g. color)
- □ P - Put to another use
- □ E - Eliminate - remove elements, simplify, reduce to core functionality
- □ R - Reverse - turn inside out or upside down

Example

- □ As an example, imagine that you are a manufacturer of nuts and bolts, and you were looking for new products. SCAMPER would give you:
  - ■ **Substitute** - use of high tech materials for niche markets, such as high speed steel? Carbon fiber? Plastics? Glass? Non-reactive material?
  - ■ **Combine** - integrate nut and bolt? Bolt and washer? Bolt and spanner?
  - ■ **Adapt** - put Allen key or Star head on bolt? Countersink head?
  - ■ **Modify** - produce bolts for watches or bridges? Produce different shaped bolts (e.g. screw in plugs)? Pre-painted green bolts?
  - ■ **Put to another use** - bolts as hinge pins? As axles?
  - ■ **Eliminate** - Eliminate nuts, washers, heads, thread, etc.
  - ■ **Reverse** - make dies as well as bolts, make bolts that cut threads for themselves in material, etc.

SCAMPER – Key points

☐ SCAMPER is an acronym for *Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, Reverse*. This is a list of changes that you could make to existing products and services to open up new opportunities

Attribute Listing, Morphological Analysis and Matrix Analysis

☐ Attribute Listing, Morphological Analysis and Matrix Analysis are good techniques for finding new combinations of products or services. They are sufficiently similar to be discussed together. We use Attribute Listing and Morphological Analysis to generate new products and services

How to use this tool (step 1)

☐ Firstly list the attributes of the product, service or strategy you are examining.
  - ■ Attributes are parts, properties, qualities or design elements of the thing being looked at.

☐ For example
  - ■ Attributes of a pencil would be shaft material, lead material, hardness of lead, width of lead, quality, color, weight, price, and so on.
  - ■ A television plot would have attributes such as characters, actions, locations, and weather.
  - ■ A marketing strategy you might use attributes such as of markets open to you, uses of the product, and skills you have available

How to use (step 2)

☐ Draw up a table using these attributes as column headings. Write down as many variations of the attribute as possible within these columns. This might be an exercise that benefits from Brainstorming. The table should now show all possible variations of each attribute.

How to use (step 3)

☐ Now select one entry from each column. Either do this randomly or select interesting combinations. By mixing one item from each column, you will create a new mixture of components. This is a new product, service or strategy.

☐ Finally, evaluate and improve that mixture to see if you can imagine a profitable market for it.

Examples

☐ Imagine that you want to create a new lamp. The starting point for this might be to carry out a morphological analysis. Properties of a lamp might be **power supply, bulb type, light intensity, size, style, finish, material, shade**, and so on.

Examples

Power Supply	Bulb Type	Light Intensity	Size	Style	Finish	Material
Battery	Halogen	Low	Very Large	Modern	Black	Metal
Mains	Bulb	Medium	Large	Antique	White	Ceramic
Solar	Daylight	High	Medium	Roman	Metallic	Concrete
Generator	Colored	Variable	Small	Art Nouveau	Terracotta	Bone
Crank			Hand held	Industrial	Enamel	Glass
Gas				Ethnic	Natural	Wood
Oil					Fabric	Stone
Flame						Plastic

Examples

- ☐ Solar powered/battery, medium intensity, daylight bulb - possibly used in clothes shops to allow customers to see the true color of clothes.
- ☐ Large hand cranked arc lights - used in developing countries, or far from a mains power supply
- ☐ A ceramic oil lamp in Roman style - used in themed restaurants, resurrecting the olive oil lamps of 2000 years ago
- ☐ A normal table lamp designed to be painted, wallpapered or covered in fabric so that it matches the style of a room perfectly

Key points

☐ Morphological Analysis, Matrix Analysis and Attribute Listing are useful techniques for making new combinations of products, services and strategies.

☐ You use the tools by identifying the attributes of the product, service or strategy you are examining. Attributes might be components, assemblies, dimensions, color, weight, style, speed of service, skills available, etc.

☐ Use these attributes as column headings. Underneath the column headings list as many variations of that attribute as you can.

Brainstorming

☐ You are trying to open up possibilities and break down wrong assumptions about the limits of the problem. Judgments and analysis at this stage will stunt idea generation.

☐ Ideas should only be evaluated at the end of the brainstorming session - you can then explore solutions further using conventional approaches.

Individual Brainstorming

☐ You will tend to produce a wider range of ideas than with group brainstorming - you do not have to worry about other people's egos or opinions, and can therefore be more freely creative. You may not, however, develop ideas as effectively as you do not have the experience of a group to help you

Group Brainstorming

☐ Group brainstorming can be very effective as it uses the experience and creativity of all members of the group.

☐ When individual members reach their limit on an idea, another member's creativity and experience can take the idea to the next stage.

☐ Therefore, group brainstorming tends to develop ideas in more depth than individual brainstorming.

Group Brainstorming

- ☐ Brainstorming in a group can be risky for individuals.
- ☐ Valuable but strange suggestions may appear stupid at first sight.
- ☐ Because of this, you need to chair sessions tightly so that uncreative people do not crush these ideas and leave group members feeling humiliated

Group Brainstorming – How to

- ☐ Define the problem you want solved clearly, and lay out any criteria to be met.
- ☐ Keep the session focused on the problem.
- ☐ Ensure that no one criticizes or evaluates ideas during the session.
- ☐ Encourage an enthusiastic, uncritical attitude among members of the group. Try to get everyone to contribute and develop ideas, including the quietest members

Group Brainstorming – How to

☐ Let people have fun brainstorming. Encourage them to come up with as many ideas as possible. Welcome creativity.

☐ Ensure that no train of thought is followed for too long.

☐ Encourage people to develop other people's ideas, or to use other ideas to create new ones.

☐ Appoint one person to note down ideas that come out of the session. A good way of doing this is to use a flip chart. This should be studied and evaluated after the session.

Key points

☐ Brainstorming is a great way of generating radical ideas. During the brainstorming process there is no criticism of ideas, as free rein is given to people's creativity (criticism and judgment cramp creativity.)

☐ Individual brainstorming is best for generating many ideas, but tends to be less effective at developing them. Group brainstorming tends to develop fewer ideas, but takes each idea further. Group brainstorming needs formal rules for it to work smoothly

Reverse Brainstorming

- ☐ **A different approach to brainstorming** *Related variant: "Negative Brainstorming"*

- ☐ Reverse brainstorming helps you solve problems by combining brainstorming and reversal techniques. By combining these, you can extend your use of brainstorming to draw out even more creative ideas

Reverse Brainstorming

- ☐ To use this technique, you start with one of two "reverse" questions:
  - ■ Instead of asking, "How do I solve or prevent this problem?" ask, "How could I possibly cause the problem?"
  - ■ Instead of asking "How do I achieve these results?" ask,"How could I possibly achieve the opposite effect?"

Tip

- Reverse brain-storming is a good technique to try when it is difficult to identify solutions to the problem directly.

How to Use the Tool

- Clearly identify the problem or challenge, and write it down.
- Reverse the problem or challenge by asking:
  - "How could I possibly cause the problem?", or
  - "How could I possibly achieve the opposite effect?

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☐ Reverse the problem or challenge by asking:
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  - ◼ "How could I possibly achieve the opposite effect?

How to Use the Tool

☐ Brainstorm the reverse problem to generate reverse solution ideas. Allow the brainstorm ideas to flow freely. Do not reject anything at this stage.

☐ Once you have brainstormed all the ideas to solve the reverse problem, now reverse these into solution ideas for the original problem or challenge.

☐ Evaluate these solution ideas. Can you see a potential solution? Can you see attributes of a potential solution?

Examples

☐ Luciana is the manager of a health clinic and she has the task of improving patient satisfaction.

■ "How do we improve patient satisfaction?"

☐ Then she reverses problem statement:

■ "How do we make more patients dissatisfied?"

Examples

☐ Double book appointments.

☐ Remove the chairs from the waiting room.

☐ Put patients who phone on hold (and forget about them).

☐ Have patients wait outside in the car park.

☐ Discuss patient's problems in public

Examples

- ☐ The team has a long list of the "reverse" solutions. Now it's time to look at each one in reverse into a potential solution. Well, resulting discussions are quite revealing. For example:

Examples

- ☐ "Well of course we don't leave patients outside in the car park - we already don't do that."
- ☐ "But what about in the morning, there are often patients waiting outside until opening time?"
- ☐ "Mmm, true. Pretty annoying for people on first appointments."
- ☐ "So why don't we open the waiting room 10 minutes earlier so it doesn't happen?"
- ☐ "Right, we'll do that from tomorrow. There are 2 or 3 staff working already, so it's no problem".

Key points

☐ Reverse brain-storming is a good technique for creative problem solving, and can lead to robust solutions. Be sure to follow the basic rules of brainstorming to explore possible solutions to the full