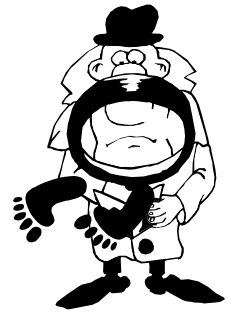


Some Basics about Creativity and Creative Problem Solving

What is Creativity?

There are as many ways of defining “creativity” as there are people. But the simplest way to talk about this elusive element we all share is that creativity is:

- ★ The ability of a person’s mind to take ideas, facts, and/or materials and perceive them in a unique way or manner.
- ★ A different point of view, a new idea and/or a new way of looking at a problem.



Many people will tell you they are not creative. You might not think you are. However, EVERYONE is creative. Everyone has his or her own style of creativity. Some are good at taking an idea and improving it and making something more useful. Others are good at discovering new, unusual solutions and ways of doing things.

Take a look around you – at the house/apartment you live in, at the furniture and fixtures in that space, etc. Take a look at the clothes you are wearing. Every manufactured item you see was, at one time or another, a thought or an idea in someone’s mind. Every time you make or decide something differently from someone else, you *created* that thought/that idea. Every time you decide what to wear, what to eat, how to get to work, how to arrange something, you are *creating*.

If everyone pictured a beautiful colored flower, and then took it through the process of mentally changing some of its characteristics (its color, shape of petals, texture, etc), not one person would come up with the same image at the end of five minutes. That’s because everyone would *create* a different image. Everyone is *Creative*.

The question is not: *How creative are YOU?*

The question is: *HOW are you creative?*

What is the Creative Problem Solving Process (CPS)?

We would like to introduce you to a Creative Problem Solving process. The Creative Problem Solving process (CPS) is capitalized because it is a *specific* process as opposed to speaking generally of creative problem solving. There are many different creative problem solving processes. This happens to be one we recommend because it is highly effective and it is easy to introduce and teach to students of all ages. And, yes, adults can learn a few new tricks, too!

This CPS process was developed based on people’s natural way of approaching issues and challenges at work or in their personal lives. It has been used successfully world-wide by people applying it in their business and at home since the mid-1950’s.

Creative and Critical Thinking

As you take your team through the CPS process to facilitate the development of a unique solution to the team’s Challenge, you will discover it takes more than **creative thinking**, it also takes **critical thinking**. Two basic ground rules are important to know: **Defer Judgment** and **Affirmative Judgment**.

Creative thinking occurs when you encounter opportunities, challenges or concerns. As you search for meaningful new connections or expand on existing possibilities (Treffinger, Isaksen, Dorval, 2000) you *generate* options and ideas. During this process you need to defer judgment. This means you need to help the team understand **how to separate generating from judging**. They need to generate many varied ideas. They should accept all options and extend to find unusual possibilities. The team should also see combination among the ideas generated.

As your team creates its *Team Challenge* or works on practice *Instant Challenge* solutions, this same process will take place over and over again. It is helpful, therefore, to teach the team some Tools to aid them along the way. Whether a team is in its **Creative Thinking Phase** (coming up with their ideas for a solution) or in its **Critical Thinking Phase** (deciding, implementing, and/or testing its solution), these fairly simple Tools can be very useful and effective. These tools will last a lifetime for both you and the team.

Four Tools from the CPS Toolbox

Very often we hear people declare that we should “brainstorm ideas” as though this were the entire creative problem solving process unto itself. Brainstorming is just one *Tool*. There are other Tools also. Just as a carpenter’s toolbox has more than a hammer in it, our CPS Toolbox has more than Brainstorming in it.

It is very important that you and your team learn the correct vocabulary. You would not want your doctor or dentist to ask the nurse or assistant for the “thingamawhopper.” You would not want your builder to tell the crew to cut the wood with that “thingie over there.” Every Tool has a purpose and unique function. We believe it is crucial to take the time to understand the CPS process and Tools and understand how they are used for the most effective and unique solution to your *Team Challenges*, *Instant Challenges* and your personal challenges as well.

CPS tools are used in two ways: To GENERATE options and to FOCUS options.

TOOLS FOR GENERATING OPTIONS

When generating options, there are some rules or guidelines that must be followed in order for the generating session to be successful. Here are some general guidelines for generating. It is important to go over these rules with your team, and perhaps even post them on the wall so that they remember them.

Basic Guidelines for Generating Options:

1. **Defer Judgment.**

An essential problem-solving skill is the ability to conceptualize freely. Conceptualization is a process that creates ideas. Nothing smothers the free flow of ideas like a sharp critical remark or harsh laughter from another person. If ideas are going to flow, it is important that there are no judgmental attitudes present that would cause a group member to become more concerned with defending ideas rather than generating them.

2. **Seek Quantity.**

The more creative ideas one has to choose from, the better. If there is a larger number of ideas to be considered, the chance of finding a really good idea is also greater.

3. **Encourage freewheeling and accept all ideas.**

It is easier to tame down an idea than to think one up. Encouraging wild or silly ideas encourages group members to be imaginative. Placing a premium on that which initially appears far out encourages group members to expand their thinking.

4. **Look for combinations.**

Sometimes one idea leads to another. Most of us have heard somebody say something and we are reminded of something in turn, or we build on their idea. Creative people can learn to be GOOD LISTENERS and use one idea to come up with another.

Tool 1: Brainstorming: A Tool for Generating Options

This Tool is used when a team needs many unique ideas.

- ★ Any time a team is ready to generate ideas, they should have lots of paper, preferably BIG paper and colorful markers. They will need masking tape to put the pages that are filled up on the wall.
- ★ Have someone act as recorder and write down ALL ideas generated.
- ★ State the task in the form of: “In What Ways Might We. . .”, or” “How Might We . . .” , etc.
- ★ Always express the statements in “headline” form: A concise, straightforward statement.
- ★ Stretch the team and challenge them to generate 40-50 ideas!
- ★ There are many variations on this tool. It is much, much more effective than simply tossing out ideas randomly into a “heap” of other ideas!

Tool 2: SCAMPER: A Tool for Generating Options

SCAMPER is an acronym (a word formed from the first letters of a group of words); for example ASAP is an acronym for “As Soon As Possible.” **SCAMPER is really just an “idea checklist” or a list of categories that may help trigger new ideas.** Each letter of the word stands for a category, so using the letters is an easy way to remember them. SCAMPER, with all its tools, is presented in its entirety below.

S. C. A. M. P. E. R.

Letter	Stands for:	Ideas that it will help generate:
S	Substitute	What might you substitute? To have a person or thing act or serve in place of another. Example: A paper tube instead of a vase to hold flowers
C	Combine	What might you combine something with? What could be brought together or blended. It could be an idea, different purposes, materials, etc. Example: A clock with a radio; a pencil with an eraser Blend (combine) yellow and blue to make green
A	Adapt	What might you change or do differently? To adjust for the purpose of suiting a condition or purpose. Example: Rolling a paper plate into a funnel
M	Modify	How can you change or alter it? Example: Cut a paper tube into pieces to make napkin holders or open the tube up to make a writing surface
	Magnify	How can something get bigger, stronger, larger, etc.? Example: Imagine the paper tube getting larger and becoming a tunnel
	Minify	How can something get smaller, lighter, slower, etc.? Example: Imagine a paper tube gets smaller and becomes a tunnel for an ant or a toothpick for a giant
P	Put to other uses	What other uses can you envision? Example: Imagine a paper tube as a scoop or a hair curler
E	Eliminate	What can be removed, omitted, cut off, cut out? Example: Imagine a paper tube with holes punched into it for a sieve
R	Reverse	What can be turned around or reversed, change direction? Example: A vacuum cleaner is a machine that reverses air.

Tips for using this Tool -

It is important for you to teach your team to recognize that it can use a version of this Tool to come up with ideas every time there is a challenge to solve.

Example: Idea generation with the use of SCAMPER: **The team needs a musical instrument.**

- What unusual material(s) could they **substitute** for an instrument?
- What could they **combine** to make an instrument?
- What could they do to **modify or change** it to make it an unusual instrument?
- Could they make it **bigger or smaller** or part of it **bigger or smaller**?
- Could they **eliminate** part of the materials they are using?
- Could they **reverse** some of the materials to make a higher or lower sound?

Other generating tools include Morphological Matrix, Forced Fit and Attribute Listing.

TOOLS FOR FOCUSING OPTIONS

The **Brainstorming** and **SCAMPER** Tools were provided for you to use with your team to help them **generate options**. After generating lots of options, it's time to evaluate or **focus** on a few that seem most promising. Two focusing tools -- **AloU** and **Sequencing (S-M-L)** are provided for your use.

When focusing options, there are some rules or guidelines that must be followed in order for the focusing session to be successful. Here are some general guidelines for focusing. It is important to go over these rules with your team, and perhaps even post them on the wall so that they remember them.

Basic Guidelines for Focusing Options:

1. Use affirmative judgment.

Use a constructive approach when evaluating options. Instead of saying, "That won't work because..." say instead, "How might we..." Sometimes great ideas are discarded because the possibilities in the idea were not explored enough.

2. Be deliberate.

Use strategies when focusing. Don't just randomly select an option. Instead, use a strategy that allows you to explore the option fully. Using a strategy, such as a focusing tool, also helps prevent conflict because it considers each idea using the same impartial process.

3. Consider novelty.

Consider more than just the quality of the ideas. Also consider the new and/or original ideas. They may lead to better ways of doing other things.

4. Stay on course.

Remind team members to keep their goals in mind as they go through the focusing process. Help keep the team on track by reminding them to step back and check their progress from time to time. Ask them to assess whether or not the decisions they are making are moving them towards their goals.

Tool 3: ALoU: A Tool for Focusing/Evaluating Possible Options

What is the ALoU Tool?

ALoU is a tool that will help the team analyze or refine one or more promising options/solutions. It is most useful when a team is ready to decide which of its options best fits its needs. ALoU will help the team look at the strengths of an option, consider the challenges that go along with that option, and look at the unique features of the option.

ALoU stands for:

- A** Advantages
- Lo** Limitations and how to overcome them
- U** Unique Features

How to Use ALoU:

On a flip chart or large writing surface, label three pages or columns. Label one as **Advantages**, another as **Limitations and How To Overcome Them**, and finally **Unique Features**. Work with each page or column separately. The team should take each idea it is seriously considering and talk about it within the framework of:

- ★ What are its **Advantages**? List all advantages first. This is often easy and fun.
- ★ What are some **Limitations and how to overcome them**? The team members should frame their statements with the sentence stem of “How to. . .,” “How Might We. . .,” “Wouldn’t it be nice if...”
 - o Note: It is important to frame the limitations or the obstacles positively in terms of *how they might be overcome*. (This is what the ‘O’ is for!). Statements should be broad, brief and beneficial.
- ★ What are the **Unique Features** of the idea? What are some potential benefits of using it?

Here is an example of how ALoU might be used:

Idea for a Technical Element	Advantages	Limitations (and how to overcome)	Unique Features
Build an 8-foot tall crayon box that opens and closes for our Presentation, since all the characters are crayons. The crayons could be inside the box.	It would look really cool, and we would not need any other scenery!	How to learn how to build something this large? <i>o: Find someone who can teach us about basic construction techniques.</i>	No other team would think of doing this!
	It fits the requirements of our Challenge perfectly if we can make it open and close.	How might we design it so that we can move it ourselves? <i>o: Make it out of cardboard</i>	We can store costumes and other props inside it when we take it to the Tournament.
	Huge props always impress the Appraisers!!!	How to get us all in and out of it? <i>o: We can go in and out of the “crayon sharpener” (a large round hole) in the back</i>	We can use it after the Tournament as a “thinking space” at our meetings!

Tool 4: Sequencing (S-M-L): A Tool that Helps Focus and Organize Options

Sequencing (S-M-L) is a focusing tool that helps people to organize options along a time line from short term to long term. Your team will find it very useful in organizing the tasks to be accomplished.

On a flip chart, using a page for each time factor, make five columns. One column is to list the options/tasks, the next three columns are headed **Short**, **Medium**, or **Long**, and the final column lists who will accomplish or take responsibility for the task.

Next, the team needs to define the length of time each time category represents. Usually, short term is the immediate future, usually “within the next 24 hours.” Medium term might be “within one to three weeks,” and long term might be “within the next month or two.” However your team defines those time frames, it is important that they agree to adhere to them.

Once the tasks have been listed and assigned and the chart is complete, the person or persons responsible for a task should also make sure they have a “friendly nag,” someone who will help follow up to see the task is being done. Most teams seem to have at least one or two kids who help keep everyone else well-organized. Being asked to be a ‘friendly nag’ by another team member can validate those kids and help everyone recognize again that there is a need for everyone’s skills on the team!

The Sequencing (S-M-L) tool will help the team to form a comprehensive, clear timeline which also identifies tasks and people who will be responsible for accomplishing those tasks.

Task	Short Term	Medium Term	Long Term	Who is Responsible
Research history of flight and bring notes to meeting		✓		Emily
Buy rope and a pulley and attach it to the device	✓			Jen and Jose
Print out Clarifications before every meeting		✓		Andy
Fill out all paperwork and make copies			✓	Carly

Other examples of Focusing Tools ree the Evaluation Matrix, Paired Comparison Analysis, and Hits and Hot Spots.

Resource

Creative Problem Solving: An Introduction (3rd Ed.) by Treffinger, Isaksen and Dorval (2000)

Summary

As you can see, using tools for **Generating Options** followed by the use of tools for **Focusing Options** will definitely keep a team moving towards completion, versus “wandering” from idea to idea. That is the beauty of using CPS Tools.

TIP: One of the best CPS tool resources for DI™ teams is *The Problem Solver’s Practical Toolbox*. This book is a joint publication of the Center for Creative Learning, Inc. and Destination ImagiNation, Inc. and was written especially for Destination ImagiNation® teams. It gives a quick overview of **generating** and **focusing** in simple language, then provides multiple examples of each of ten CPS tools and how they can be used in DI situations. Use the Product Order Form from the Shop link on the DI website, www.destinationimagination.org