Unit 5

Developing Critical Thinking Skills

Learning Outcomes

By the end of this unit the learner will be able to:

- ✓ Identify the difference between creativity and innovation
- ✓ Recognize your own creativity
- ✓ Build your own creative environment
- ✓ Explain the importance of creativity and innovation in business

Unit 5
Developing Critical Thinking Skills

The Role of Creativity and Innovation in Business
Take a look around the room. What items embody creativity and innovation?

Why are creativity and innovation important for business?

The Birth of the Four Seasons: A Case Study

The Birth of the Four Seasons Hotel Chain

In 1961, Isadore Sharp opened the first Four Seasons Motor Hotel in downtown Toronto. At this time, guests had two options for overnighting: they could choose a smaller hotel with a cozy atmosphere but few amenities, or a larger impersonal hotel with all the amenities imaginable. Each type of hotel had its benefits as well as its shortcomings. The smaller hotel simply could not offer a business traveler the options they needed, like a meeting room. On the other hand, due to its sheer size, the larger hotel left guests feeling anonymous.

To offer travelers the best of both worlds, Isadore Sharp created his new business model: the medium-sized hotel. With only 220 rooms, he knew that he would have to charge prices much higher than his competitors in order to afford state-of-the-art amenities. How would he overcome this obstacle?

Sharp decided that if his hotel was creative and innovative in terms of customer service, guests would pay the premium prices. To better gauge what services to offer, Sharp enlisted the help of his guests. Based on their feedback, Sharp decided to offer services that would make guests feel like they were at home or in their own office.

To replicate the sought after at-home feeling, the Four Seasons was the first hotel to offer shampoo in the showers, hairdryers, makeup mirrors, 24-hour room service, bathrobes, dry cleaning, and pressing. To replicate the "in their own office" feeling, the Four Seasons was the first hotel to install a two-line phone in every guest room, a big well-lit desk, and 24-hour secretarial service. This revolution in customer service set the Four Seasons hotel chain apart from their competitors.

(The information for this case study came from Roger Martin's book *The Opposable Mind: Winning Through Integrative Thinking.)*

Discussion Questions

How did Isadore Sharp use creativity and innovation to achieve his goals?

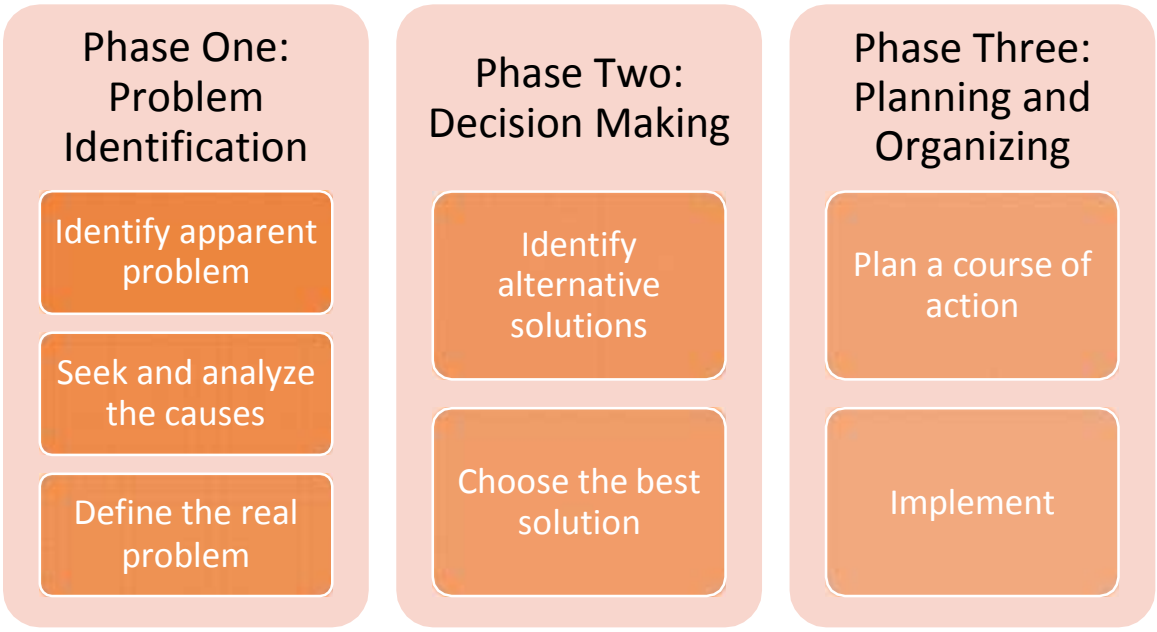
How did Sharp avoid choosing the existing models of the hotel industry?

What steps did Sharp take to create his new hotel model?

Do you think Sharp's creativity and innovation had any effect on the hotel industry? Why or why not?

Where Does Creativity Fit Into the Problem-Solving Process?

Problem-Solving Models



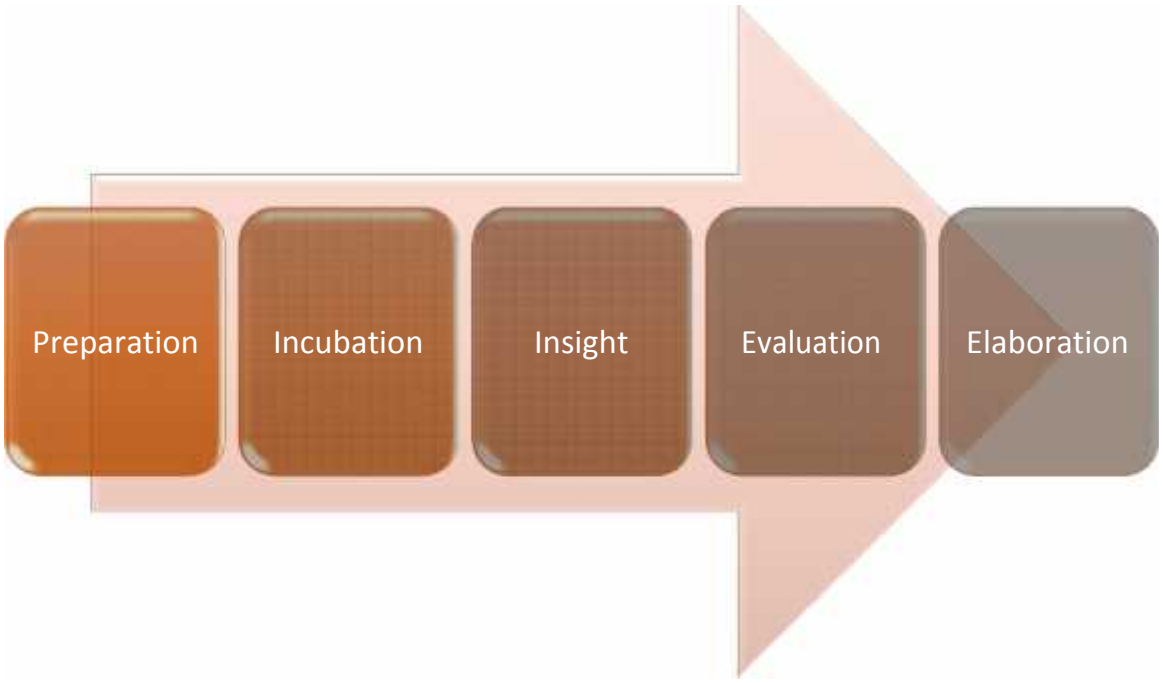
This process is the very basis for informed and consistent problem solving, and creativity is a key part of the entire model. Each phase is equally important: proper identification of the problem, creativity in identifying solutions, innovation in implementing solutions.

The first stage of problem solving involves proper identification of the problem. This stage is vital since it will enable you to generate the right solutions. Do not rush this stage: make sure you know what the problem is before you proceed.

The second stage involves creativity and the generating of ideas. This stage revolves around identifying your options and deciding which option will be the best to solve your issue.

The third stage involves innovation: making a plan and implementing the ideas generated in the second stage.

Another Perspective for Creative Problem Solving
Here is another model that we can use for creative problem solving:



This model comes from Mihaly Csikszentmihalyi's book *Creativity: Flow and the Psychology of Discovery and Invention*.

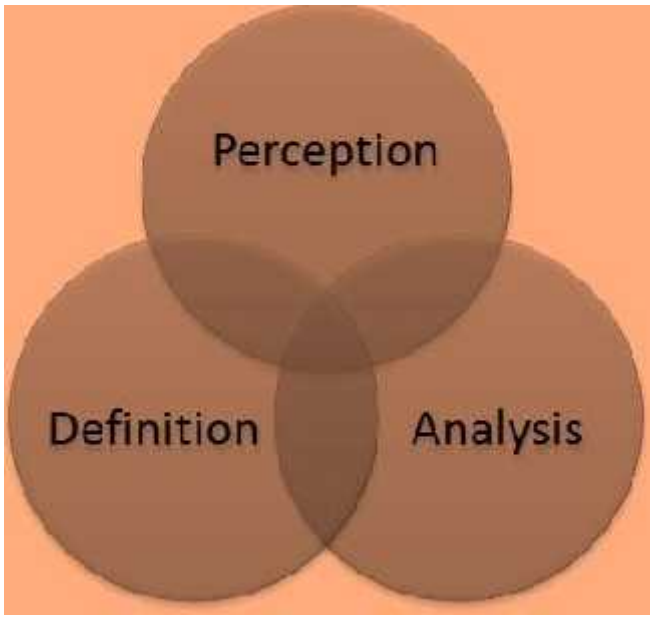
Here is a more detailed breakdown of the model.

- **Preparation Phase**: During this phase, we are becoming immersed in a set of problematic issues that are interesting or arouse curiosity.

- **Incubation Phase**: This phase is the percolation phase. Here we have ideas churning around in our heads. This is the phase when unusual connections between ideas can begin to emerge.
- **Insight**: This phase is the "Aha!" moment, as Oprah would say. It's the time when the pieces of the puzzle come together.
- **Evaluation**: This is the phase when we must decide if the insight(s) made in the previous phase have any value. Are they worth pursuing?
- **Elaboration**: If our insights have value, we elaborate and act on them. This phase transforms our ideas into a plan. We take the abstract and make it concrete.

Keeping an Open Mind

Part of the problem-solving process is re-evaluating and evolving. This will ensure that you reach the best solution possible. Consider how perception, definition, and analysis overlap:



Solving Problems the "Right" Way

There is no one "right" way to solve a problem. If there was, it would be much simpler to decide on a solution and apply it! With so many different kinds of problems to deal with, there is no system that works in every situation. Many solutions are possible, and some are better than others.

Your skill as a problem solver depends on your expertise with the tools and your knowledge of how to use them. You know you don't always solve problems step by step. Sometimes you have a solution before you know what problem it solves. (For example, you decide to move your bed against another wall and you find out the next morning that the sun doesn't wake you up so early.) However, for many situations, having formal steps to follow can help you create flexible, workable solutions.

Phase One
Let's take a look at the first phase of the three-phase model: Problem Identification. Let's look at each of the three steps in this process. In all steps, your focus is on the problem itself.

Perception
You ask yourself: Is there a problem? Where is the problem? Whose problem is it? This is the exploration stage. It includes whatever you do to get a handle on the problem.

What are the symptoms? Funny noises in the engine, an unhappy look on your employee's face, or a change in the productivity rate? You've got to find out what the problem is.

The purpose of this phase is:

- To surface an issue.
- To make it okay to discuss it (legitimize).
- To air different points of view.
- To avoid perception wars.
- To get group agreement to work on the problem.

Steps in this phase include:

- Legitimizing the problem; make it okay to discuss it.
- Asking, "How does the problem feel?" and, "What's the real problem?"
- Identifying the best, worst, and most probable situation.
- Identifying whose problem it is.

Definition
Here, we state the problem as a question. Our goal is to grasp the general idea of the problem and then draw the rope tighter to get a more specific idea of the problem.

Steps in this phase include identifying:

- What is the problem?
- What is not the problem?

Analysis
Now that we have a general idea of the problem, we will use analytical tools to define it even further. Steps in this phase can include the following techniques.

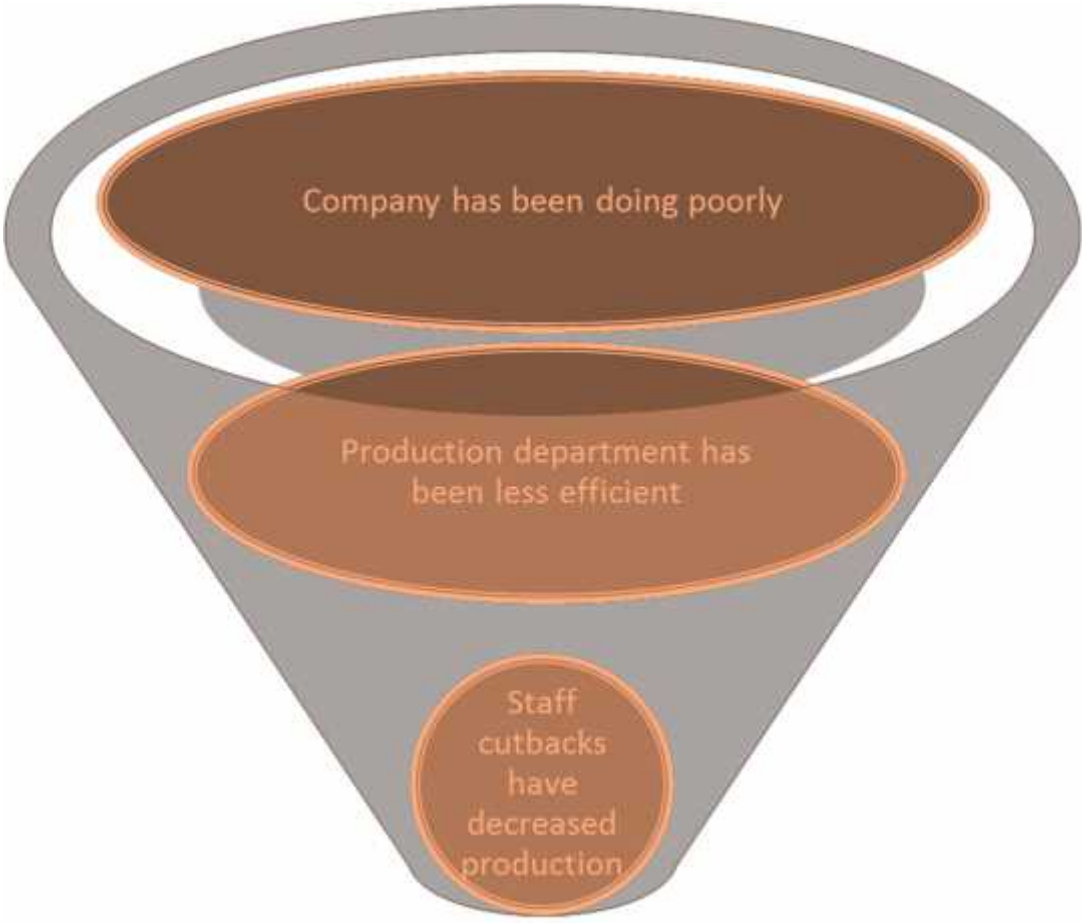
Ask basic questions, such as who, what, where, when, why, and how.

Break it down into smaller pieces. For example, if we know that the problem is that revenue is down, we can break it down into possible areas of cause: manufacturing, shipping, or sales.

Ask the expert. Find a person who has dealt with this sort of issue before.

Move from **generalizations to specific examples** as a way of testing what the problem is or is not. For example, you could say, “Our company has really been doing poorly all year.” We could further identify how the company has been doing poorly; let’s say that the production department in particular has been less efficient, costing the company money. Then, we can look at what aspect in particular is doing poorly.

This analysis can be looked at in the shape of a funnel. We move from the top of the funnel (the general issue) to the bottom of the funnel (the specific issues):



Possible Solution: Hire Staff to Increase Production

Phase Two

The next phase of the problem-solving model (idea generation) involves a high level of creativity. Remember, you must have completed the first phase (identifying the problem) before you move onto creating possible solutions. As well, if the problem you are trying to solve involves group input, be sure that all group members agree that the problem has been accurately identified. If people don't agree on the problem, they will never agree on a solution!

Creative Thinking Methods

Here are some tools you can use to come up with ideas.

Brainstorming

Draw a circle in the middle of a page and write down your problem. Then, draw lines from that circle and write possible solutions. Don't worry if some ideas are unconventional; this is a time for creative thinking, not critical thinking. The purpose of this exercise is to capture the range of ideas.

Checkerboard

This is a more organized form of brainstorming and can be particularly helpful for people who don't like how chaotic a brainstorming session can become. With this method, you organize your thoughts into a table. We still want creative thinking rather than critical thinking, but this method may help you develop ideas.

Here is an example of a checkerboard.

Main Problem	Possible Specific Solutions		
Roof at the office needs to be shingled	Have construction done in the summer to minimize the effect on the workplace	Have staff work from home	Arrange to have the roof worked on in the night
People are consistently showing up late for work	Dock their pay for time missed	Bring the problem to their attention	Provide incentives for good attendance
Colleagues are leaving dirty dishes in the staff room	Post a sign stating expected behavior	Speak to the people responsible individually	Assign a cleaning schedule for each day

Next, cut up solutions and move them around, or use your computer. This can help you organize your ideas and generate even more solutions!

Research and Report

We do not have to reinvent the wheel. Look at what others have done. Do some research and prepare a report. With some investigation, you might just find the perfect solution to your problem. Or you might just learn what not to do!

Evaluation

Now that we have been through the creative process and generated ideas, it's time to evaluate the solutions to find the best fit.

- Sort solutions by category. This can be similar to the checkerboard above, just with some critical thinking applied.
- Identify the advantages and disadvantages to each solution.
- Identify what you like about each idea and what you don't like.
- Number your ideas in order, from the one that seems the most feasible to the one that seems the least feasible.

Decision Making

Once you have evaluated the options, it's time to make a decision. Here are some ways you can do it:

- Get a consensus from the group on the best solution.

- Don't limit yourself to one option; you may find that you can combine solutions for super success. (This is called the both/and method.)
- Eliminate the solutions that the group as a whole won't consider.
- Try to focus on agreements during all voting.
- Use straw voting: Take a quick, non-binding yes/no vote on the current solution as proposed.
- Try negative voting: Rather than asking who is for a solution, ask who is against the proposed solution.
- Back off! The group may need some time to evaluate the options before making a decision.

Phase Three

The last phase involves innovation. We take the chosen idea generated from our creativity phase (Phase Two) and plan how to implement the idea. In addition to planning, we perform the implementation of the solution. After all, we have to try out our solution sometime!

Planning

For the planning portion, start by breaking the task into manageable chunks. Then, for each mini-task, plan the following information:

- What needs to be done?
- Who will do it?
- What resources will we need?
- How much time will it take? (Set a deadline!)

Once all the smaller tasks are planned out, you will have an idea of how long the main solution will take to implement. You will also want to make sure that the above questions are answered for the main task.

Implementation

Implementation is a cycle of three activities:

- Figuring out what you are going to do
- Doing it
- Reacting to what happened or getting feedback

Solution Planning Worksheet

It can help to lay out what you are planning to do. Here is an example of a solution planning worksheet.

Problem: Staff shortage

Solution: Hire more staff

Task 1	**Hiring budget needs to be assessed.**

	What needs to be done?	Budget needs to be assessed to know how many people we can afford to hire
	Who will do it?	Deborah from Accounting
	What resources will they need?	All resources in-house
	How much time will it take?	Targeted completion date: Dec. 31
Task 2	**Establish company presence at local job recruiting fairs.**	
	What needs to be done?	Contact people who run recruitment fairs and reserve a spot for our company
	Who will do it?	Bill and Barb from Human Resources
	What resources will they need?	Table, Chairs, Company Brochures, Applications, Decorations
	How much time will it take?	Targeted completion date: March 1
Task 3	**Advertise Openings.**	
	What needs to be done?	Job advertisements need to be created and posted on company website
	Who will do it?	Sheila from Human Resources and Bob from Tech Support
	What resources will they need?	All resources in-house
	How much time will it take?	Targeted completion date: Jan. 20

Defining the Problem

Problem Identification

The first and most important undertaking of your problem-solving efforts needs to be defining the problem. You cannot work on something if you don't know what it is. You have to resist the tendency to start working on the problem as soon as you know one exists, and instead develop an understanding of whether you are addressing the problem or merely a symptom of it.

We should go after the problem rather than attack symptoms. This way, we can create higher quality solutions that in turn will eliminate or reduce the symptoms. As well, this will resolve the problem much more easily than when you attack the surface only. Most importantly, you'll also know that you are taking on a worthwhile problem.

Asking the right questions and avoiding assumptions is vital in this phase.

Eight Essentials to Defining a Problem

Although we make decisions all the time, some decisions come easier than others. The first step is to define the problem clearly. We have eight suggestions to help you do this as easily, efficiently, and effectively as possible.

Rephrase the Problem

Sometimes what we want to see is not what other people see. When the boss sees sales drop and he tells his team to work harder, he's not likely to see much of a result. He's telling people what to do for his benefit. Unfortunately, this approach does very little to engage people. Instead, he could rephrase the problem and ask people what they feel connects them to their work. He can take an interest and ask what they can do to make their jobs easier or make work processes more efficient. In this way he engages people, finds out what could be affecting their sales, and can come up with solutions instead of just telling people to be "more productive." By showing people what's in it for them and involving them in the problem-solving process, the boss is motivating his employees to find creative solutions.

If you have a hard time with wordsmithing, grab a dictionary and thesaurus (or look at online versions) and play with your problem statement by changing it several times. Start with one word or short phrases. If you don't enjoy word games very much or feel yourself struggling, ask for help from a colleague or friend.

Here's an example. If the problem seems like "Our production costs have increased," start replacing words to become clearer about what's going on:

- "Our sales are down slightly from last year."
- "Our customer volume is down from last year."
- "Wages have stayed the same."
- "Production costs are the same from last year."

By doing this type of rewording, you can narrow things down and determine that the real problem isn't that your production costs, it is the decrease in sales. The problem appears to be that sales are down. Finding out why will be your next step.

Expose and Challenge Assumptions

We assume a lot. It's human nature. Unfortunately, assumptions can really interfere with getting an accurate problem statement.

When defining your problem, write a list and include as many assumptions you can think of, especially the obvious ones. This helps to clarify the problem. Then, test each assumption and find out if some of them are actually wrong, or if you imposed them on yourself.

One common assumption is to say, "We've never done it that way, so we won't be allowed to do it in the future."

Use Facts

Sometimes we see a problem and just want to jump in and fix it. However, we are also generally responsible for things like time and money, so it's important that we look at the details and determine what the problem really is. Find the data you need to define the problem. If you need creative aids to help with your thinking, use them. Draw a picture or a graph to help gather and focus your thoughts. Ask questions and gather information that honestly describes the problem so that you can get specific about it.

"You take too many coffee breaks," is a very vague statement of a problem. "You've taken five coffee breaks today and I feel it is affecting your productivity," is specific. With straightforward problems like this one, you will find that defining the problem and bringing it to the other person's attention will often resolve it. There are very few people who will continue to challenge the supervisor once they demonstrate an awareness of the problematic behavior being repeated.

Grow Your Thinking

Problems are often related to other problems. They can be a small element of a larger issue, so this element of problem definition includes considering the problem as part of something larger. To do this, you make the problem more general.

Ask questions such as

- "What's this connected to?"
- "What is this an example of?"
- "Where have we seen this before?"

Leveraging the word play we used earlier, replace specific words with more general ones. "Budget" becomes "finances," "office desk" becomes "furniture," "mouse" becomes "pest."

Shrink Your Environment Temporarily

Since each problem is likely made up of smaller problems, one way to figure out the issue is to split it into smaller pieces. Break the problem down into subsections. This allows you to consider specific details pertaining to each factor involved in the issue. This will help you gain an understanding of the bigger problem, as well as the effect that the smaller problems have on one another.

An example could be that you need to increase your income by $2000 a month. Break this problem down into manageable chunks.

- I have been spending $1000 a month on home renovations. I can cut this back to $200.
- I can put in extra hours at work.
- I can ask for a pay increase.
- I can do odd jobs like cleaning to generate income.
- I can stop going out for coffee and save $100 a month by making coffee at home.
- I can prepare lunch at home instead of eating out. This will save me $300 a month.

Shrinking your environment is very effective when you have a problem that is overwhelming. It allows you to focus on something tangible. You can again use word play to great benefit here, using words that are more accurate in their definition. “Vehicle” becomes “taxi” or “car.” “Budget” becomes “our department’s budget” and then “our department’s travel budget.”

Practice Multiple Perspectives

Although the problem may be very clear from where you are looking right now, that may not be the case from everyone else’s perspective. If our sales are decreasing, we may think it’s because our sales team is not being effective, but maybe our competition has dropped their price and added a feature to their product that makes them more appealing than we are.

Rewrite the problem from several different perspectives. How does your customer look at this problem? What about your sales team? Your courier? Add perspectives for people in different roles. How would your spouse see this? A former teacher? A local business association? The people at the café down the street?

Turn it Upside Down

One powerful perspective for defining your problem is to look at it from the reverse direction. If you want more of something, figure out what you get less of as a result. Investigate what happens to decrease sales, or to sell fewer products, or to lose more games. If you feel that sending an employee to a conference is too expensive, consider what happens when you do not send them.

Change your perspective and consider things from angles you had not yet considered, and consider the consequences. What about setting up a bare bones product that does not have all the same elements as the fancy items people are buying from your competition?

Frame the Problem Purposely and Positively

This is something we borrow from goal setting. Our brains will focus on things that are positive and exciting. Even more effective is to reframe what you think as the problem into a positive and engaging question, because our subconscious loves to ponder questions and will start working on them immediately, even if we don't think we're thinking about it. For example, instead of thinking, "We need our employees to quit smoking because smokers are driving up costs of our benefit plan," try, "How can we encourage our employees to live long healthy lives and live to be happy people?"

Tie It All Together

Create a three to four sentence summary for this session.

Using the Power of Eight

Problem One: Revenue in the company is down 15% from last year.

Assignment: Define the problem using the "Rephrase the Problem" and "Expose and Challenge Assumptions" elements.

Problem Two: There has been a rash of billing related customer complaints in your department.
Assignment: Define the problem using the "Grow Your Thinking" and "Practice Multiple Perspectives" elements.

Problem Three: Staff meetings in your department are perceived as ineffective.
Assignment: Define the problem using the "Rephrase the Problem" and "Expose and Challenge Assumptions" elements.

Problem Four: Employees have been repeatedly leaving early for lunch.
Assignment: Define the problem using the "Grow Your Thinking" and "Practice Multiple Perspectives" elements.

Further Reading:

- ✓ *The Opposable Mind: Winning Through Integrative Thinking.* Harvard Business Press, 2009.
- ✓ Seelig, Tina. *inGenius: A Crash Course on Creativity.* HarperCollins, 2012.