Exercise 7: Problem Solving

*"Problems are only opportunities in work clothes."*

*– Henry Kaiser*

(American industrialist)

During mentoring discussions, it may be that you would want to help the mentee look at a problem and work out the best way to resolve it. Problem solving is a skill that is a useful tool in your box of strategies to help the mentee over come difficulties.

Problems can be simple daily events or lead to more complex situational problems that need a long term view and solution.

Much of that confidence comes from having a good process to use when approaching a problem. With one, you can solve problems quickly and effectively. Without one, your solutions may be ineffective, or you'll get stuck and do nothing, with sometimes painful consequences.

When the problem is simple, there is often a simple and quick solution so a structured approach may not be necessary. However, subconsciously, you will have processed the evidence and automatically created solutions which are obvious without further analysis and testing.

But, for more complicated problems, we have to apply a structured approach to ensure that we fully understand the problem and what the best solution would be.

There are four basic steps in problem solving:

1. Defining the problem.

2. Generating alternatives.

3. Evaluating and selecting alternatives.

4. Implementing solutions.

1. Defining the Problem

The key to a good problem definition is ensuring that you deal with the real problem – not its symptoms. For example, if performance is substandard, you might think the problem is with the individuals submitting work. However, if you look a bit deeper, the real problem might be a lack of training, or an unreasonable workload.

Tools like the 5 whys and Root Cause Analysis help you ask the right questions, and work through the layers of a problem to uncover what's really going on.

At this stage, it's also important to ensure that you look at the issue from a variety of perspectives. If you commit yourself too early, you can end up with a problem statement that's really a solution instead.

Sometimes, what may seem to be a single problem turns out to be a whole series of problems. The Drill Down technique will help you split your problem into smaller parts, each of which can then be solved appropriately.

Drill Down is a simple technique for breaking complex problems down into progressively smaller parts.

To use the technique, start by writing the problem down on the left-hand side of a large sheet of paper. Next, write down the points that make up the next level of detail on the problem a little to the right of this. These may be factors contributing to the problem, information relating to it, or questions raised by it. This process of breaking the problem down into its component part is called 'drilling down'.

For each of these points, repeat the process. Keep on drilling down into points until you fully understand the factors contributing to the problem. If you cannot break them down using the knowledge you have, then carry out whatever research is necessary to understand the point.

**Step 2: Generate Alternatives**

The more good options you consider, the better the final decision will be.

When you generate alternatives, you force yourself to dig deeper, and look at the problem from different angles. If you use the mindset ‘there must be other solutions out there,' you're more likely to make the best decision possible. If you don't have reasonable alternatives, then there's really not much of a decision to make!

* **Generating Ideas**
	+ Brainstorming, the most popular method of generating ideas.
	+ Reverse Brainstorming starts by asking people to brainstorm how to achieve the opposite outcome from the one wanted, and then reversing these actions.
* **Organizing Ideas**
This is helpful when you have a large number of ideas. Sometimes separate ideas can be combined into one comprehensive alternative.
	+ [Affinity Diagrams](http://www.mindtools.com/pages/article/newTMC_86.htm) organize ideas into common themes and groupings.

When you're satisfied that you have a good selection of realistic alternatives, then you'll need to evaluate the feasibility, risks, and implications of each choice.

**Step 3: Choose the Best Alternative**

Having evaluated the alternatives, choose between them. The choice may be obvious. However, if it isn't, these tools will help:

* [Grid Analysis](http://www.mindtools.com/pages/article/newTED_03.htm), also known as a decision matrix, is a key tool for this type of evaluation. It helps you bring disparate factors into your decision-making process in a reliable and rigorous way.
* [Decision Trees](http://www.mindtools.com/dectree.html) are also useful in choosing between options. These help you lay out the different options open to you, and bring the likelihood of project success or failure into the decision making process.

Look at the decision you're about to make dispassionately, to make sure that your process has been thorough, and to ensure that common errors haven't crept into the decision-making process.

**Step 4: Communicate Your Decision, and Move to Action!**

Once you've made your decision, it's important to explain it to those affected by it, and involved in implementing it. Talk about why you chose the alternative you did. The more information you provide about risks and projected benefits, the more likely people are to support the decision.