



Clearing the Three Hurdles to Better Problem-Solving and Decision-Making

Organizations understand that good decision-making is vital to improving performance and achieving superior results. A recent Harvard Business Review (HBR) issue devoted most of an entire publication to problem-solving and how to create a culture that promotes making better decisions. A quote from HBR summed up their thoughts on the importance of decision-making, “*Ultimately, an organization’s value is just the sum of the decisions it makes and executes.*”

The State of California’s Human Resource division, CALHR, recently chose ten competencies or essential skills they felt every employee, at every level of California government service, should possess. One of these attributes was “an analysis or solution mindset”. This competency (as well as the other nine) came from a rigorous examination of workforce needs by The New World of Work’s 21st Century Skills Study. This paper outlines how to develop this vital competency (an analysis and solution mindset).

- *Have you been recognized in the workplace for your ability to quickly size up a problem, gather useful information, and generate reliable decisions?*
- *Do you have a sense of what interferes with one’s ability to solve problems?*
- *Is your ability to solve problems and make good decisions improving?*

The know-how to be an effective decision maker is beyond no one’s reach. There is solid empirical evidence that these are the hurdles to making consistent and successful decisions. For anyone serious about improving their decision-making skills, they should focus on overcoming these three obstacles.

The Three Hurdles

1) Unconscious bias (experts in the behavioral sciences says this is the biggest hurdle)

Unconscious bias, irrational thoughts, and false assumptions (all names for similar experiences) keep us from making good decisions. This has been scientifically proven and validated over the last 30 years and forms the basis of modern behavioral economics (the science of how people make decisions).

2) No structured approach to solving problems and making decisions

Most people lack a routine approach to solving complex problems or making critical decisions. This results in wasted time, false starts, delayed decision-making and often leads us to avoiding the issue altogether.

3) Insufficient tools to use in the problem-solving and decision-making process

When you lack the tools to solve problems, it is like moving a large pile of earth without a wheel-barrow or shovel. You will probably figure out a way to move the dirt, but you will spend more time doing it and waste a lot of energy in the process. A lack of problem-solving tools is similar. This lack of tools results in failing to define problems, gathering the wrong information, poorly analyzing the information we do gather, and ultimately results in poor choices or decisions.

Clearing the Hurdles to Make Better Decisions

The key to clearing the three hurdles and becoming a better problem solver and decision maker is recognizing the three hurdles and finding a consistent and proven means to overcome these obstacles.

Hurdle #1 - Letting unconscious bias get in the way

The Solution = Recognize Bias and Learn How to Overcome It

Behavioral science offers concrete suggestions for recognizing the most important biases and how to overcome them. This paper introduces you to unconscious bias, shows how it interferes with decision-making, and illustrates how this knowledge (and solutions #2 and #3) can make you a better problem solver.

Hurdle #2 - Lacking a structured approach to solving problems

The Solution = Learn a Model and Use it Consistently

Problem solvers need a model to follow. Organizations should teach and encourage a generally accepted model. If your organization doesn't have an accepted problem-solving methodology, you will find one in this paper. This is a method similar to one used in thousands of modern organizations, and the first of two of the most effective ways to overcome unconscious bias.

Hurdle #3 - Lacking the tools

The Solution = Find some Tools, Learn to Use Them, and Practice Them Often

There are scores of effective tools for overcoming bias and successfully performing every step of any problem-solving model. None of the tools are closely held secrets. The tools are widely available. You simply need to learn a few of the tools and then apply them at the proper time in the decision-making process.

Unconscious Bias (Hidden Bias, Irrationality, or False Assumptions)

Unconscious bias happens outside of our control. Bias is evident when we make quick judgments or assessments without the benefit of slow deliberation or rational critical thinking. It happens automatically; it is influenced by our background, cultural environment, and personal experiences. But a quiet revolution has taken place over the last 30 years and resulted in the behavioral sciences recognizing that unconscious bias is the biggest obstacle in the path of those who want to make reasoned and appropriate decisions. This is real science, not a fad or a trend. Daniel Kahneman was awarded the Nobel Prize in economics in 2002 for his contribution to founding the field of behavioral economics. Behavioral science explains the role of bias in our thinking and how it contributes to irrational decision-making.

There are scores of biases, far too many for this short paper, but we will explore a few of the most important ones. In this section you will come to see the importance of bias and how it affects our decision-making. In the next two sections (models and tools) we will tackle the issue of overcoming bias.

The status quo or "laziness or paralysis" bias

A belief or preference to keep things the way they are, even if a change would provide better options. It is almost as if the individual convinces themselves (in spite of all evidence to the contrary), that any issue or problem will simply work itself out. It can result in putting things off or failing to make a time sensitive decision, because it is simply easier to live with the status quo.

Example – You are faced with a choice to invest in one of seven funds for an IRA (a tax free retirement fund). You know this would benefit you at work and in your future. You know the money would not be taxed now or even until your retirement. You may even have the knowledge that your employer would match the funds, which would double your investment! You know you could afford the modest monthly investment, but you put off the decision because you just can't seem to find the time to make a choice amongst the funds or complete the paperwork. You accept the status quo (doing nothing), in spite of the knowledge that a picking a fund is the rational choice.

Confirmation bias

This bias leads individuals to gather only information that is “self-serving” or that supports firmly held beliefs. It can influence how we interpret the information we gather and even how we recall this evidence. It leads us to interpret situations in a biased manner and remember things in a way that distorts reality or reinforces those firmly held attitudes or beliefs.

Example – Ed believes so firmly that man-made climate change is a myth, that he only examines information supporting this belief. When Ed goes to the web to search for evidence about climate change, his Google search terms are apt to be, “Why is man-made climate change a myth?” When Ed is confronted with any conflicting evidence, he dismisses this information out of hand. Even his recall comes to support his beliefs; he can remember nothing that disproves his firmly held conviction that widely accepted climate science must be wrong.

Narrow Framing Bias

A narrow-framing bias convinces the individual that a problem has only one solution. This limits the individual's search for more evidence or more pertinent information that could likely be used build alternative solutions.

Example - Baruch Fischhoff, a researcher from Carnegie Mellon University, has studied teenagers and decision-making. He found that 65% of all teenage decisions were either “statements of resolve” or a choice between only two alternatives. A statement of resolve has no alternative. It is a statement such as, “I guess I have to drink tonight, since everyone else is”. In the remainder of teenage decisions, their choice was yes or no or a similar binary choice. Their choice was often framed in the following way, “Do I dump my boyfriend or stay with him?”, or “Should I start vaping or not?” If this seems surprising, then compare it with a 1993 Ohio State study of 168 relatively high-level corporate decisions. The study found that only 29% of these decisions involved more than one alternative. These organizations were no better decision makers than teenagers!

Short-Term Emotional Bias

This bias gets in the way of a rational examination of the risks, the rewards, the costs, or a thorough examination of the long-term results of a decision. Our short-term emotion is interested in the here and now or what we strongly feel should happen.

Example - Many times we react in the moment or without reflection, even to relatively important events or potential decisions. Strong emotions such as anger or fear of embarrassment outweigh what should be deliberate or rational reactions, and result in an outburst that we realize is inappropriate and often immediately regret. Our short-term emotions are counterproductive to deliberate and sound decision-making in the workplace.

Overconfidence Bias

This is a well-known bias that results in overestimating our ability to do something, misjudging the odds that a solution will be effective, or miscalculating the reaction of others. The overconfidence bias often occurs after we make an initial decision. We tend to fall in love with our choices; the familiarity convinces us that we have probably made the right decision.

Example - As we engage in problem-solving and decision-making, we gather more and more information. Some of this information will be helpful, but other information will prove to be useless or lead us in the wrong direction. Unfortunately, the overconfidence bias convinces us we have more accurate or more complete information than we actually do. This can be especially true for successful professionals. Their previous successes get in the way of actively and skeptically examining new evidence. They rely too much on the overblown estimates of their perceptions (based on past experience) and not enough on digging for the actual facts of a situation.

The biases above are just a few of the several dozen recognized unconscious biases that interfere with good decision-making. Though many biases have been identified, you will boost your problem-solving skills if you appreciate the negative power of even a few of the most common biases. By recognizing these biases and building a system to overcome them (the problem-solving model and critical thinking tools that follow) you will have taken the first step to becoming a superior decision-maker.

How can one overcome the power of these biases? You've taken one step already, by recognizing that bias exists and increasing your understanding of it. The next two steps complete the process. Step two in the path to better decision-making is learning a problem-solving model and using it consistently.

A Five-Step Problem Solving Model for Overcoming Unconscious Bias

There are many problem-solving and decision-making models. Some are very simple. They run the gamut from trial and error and asking an expert, to the less-than-dependable flip of a coin. More reliable processes are logical, multi-step methods that have evolved over time to gain widespread workplace acceptance.

The following model is a standard five-step approach that is used by thousands of businesses and governmental organizations around the world. It differs very little from the seven-step method preferred by California State Government, the Completed Staff Work Process. We are using this simpler five-step method in order to clearly and more easily show the interaction of bias, a problem-solving model, and the associated critical thinking tools.

The Five Steps

1) Define the problem or get to the root cause of an issue

You define the problem:

- a) To gain clarity about the problem, the issue, or the cause and
- b) So you solve the right problem

This is one of the most important steps in the process. Not only does it provide a start, a first step toward resolution, but it forces you to stop and focus on the real issue (the root cause of the problem).

2) Gather information relevant to the problem or issue

Gathering information is vital. Full information adds the context or insight to the problem, such as who are the stakeholders, what is the history, who is involved, and more.

3) Generate alternative solutions to the identified problem

Just as there is no one perfect food, there is never a single solution to any problem. There may be a superior solution, but you will have a greater chance of identifying that solution after you have seen or generated many solutions from the information you gathered.

4) Decide on the best alternative or solution to the problem

With multiple solutions and information in front of us, it is now time to critically examine the evidence and alternative solutions and choose the most viable answer (the superior solution).

5) Implement the solution, evaluate the results, and determine your next steps

Finally, it is time to implement our solution and seriously evaluate whether the solution yielded the results you sought, if the costs of the solution were justified, and if should your continue on this course or reexamine the problem and move in another direction.

At any of the steps in the process, or more likely every step, unconscious bias can get in the way of good problem-solving. This finding is the essence of years of scientific findings from the behavioral sciences. These findings show that we are not entirely rational as we examine an issue, gather information, or make decisions. This is the reason we need to consider our unconscious bias(es) at every step in the problem-solving process.

The table on the next page illustrates which biases interfere with our decision-making. The table shows what happens at each of the five steps in the problem-solving process. It illustrates (at each of the steps 1-5) how using a model is a way to overcome bias.

As you read through the table on the next page, consider what would happen if we didn't use a model. We would be a victim of our random biases. We might never even start the process, because the status quo or laziness bias is always on hand to delay us or even convince up not to begin the procedure at all.

How Using a Model Serves to Overcome Unconscious Bias

<p>Step 1) Define the problem (root cause) of an issue</p> <p>Allows us to overcome the status quo bias. How?</p> <p><i>See the explanation to the right.</i></p>	<p style="text-align: center;">Status quo or “laziness” bias</p> <p>The status quo bias keeps us from doing anything. This bias can paralyze us. If we don’t know how to start, it is often easiest to do nothing. Simply identifying and taking this first step (defining the problem) gives us a starting point. It shows us there is a right way to start a problem-solving process.</p> <p style="text-align: center;">It clearly says how <u>not</u> to start the process. i.e. Never start by generating solutions before defining the problem.</p>
<p>Step 2) Gather relevant information</p> <p>Allows us to overcome the confirmation bias. How?</p> <p><i>See the explanation to the right.</i></p>	<p style="text-align: center;">Confirmation bias</p> <p>The confirmation bias can lead to gathering only information that is “self-serving” or information that reinforces our previously held beliefs. Now that we know this is an issue, we can force ourselves to gather more than our “gut” or intuition tells us is necessary. Is that all? No. Taking this step will help, but on the next page we will see a tool that will offer even more aid.</p>
<p>Step 3) Generate multiple alternative solutions</p> <p>This step allows us to overcome the narrow-framing bias</p> <p><i>See the explanation to the right.</i></p>	<p style="text-align: center;">The narrow-framing bias</p> <p>This bias tells us that we only need to examine a maximum of two alternatives. It keeps us from seeking other potentially superior solutions. Even if we are convinced that we have the only options, this step tells us to keep going or generate more possible solutions. It forces us to keep looking, dig deeper, or overcome our natural bias or inclination to narrow-frame.</p>
<p>Step 4) Examine the alternative solutions and choose the superior one</p> <p>This is the step says step back, ignore first impulses, and rationally examine the alternatives.</p> <p><i>See the explanation to the right.</i></p>	<p style="text-align: center;">Short-term Emotion</p> <p>This bias gets in the way of a rational examination of the risks, rewards, costs, or a thorough examination of the long-term results of a decision. Our short-term emotion is interested in the here and now. Short-term emotions like anger, annoyance, fear, guilt, or shame tell us the choice is obvious. It tells us to “pull the trigger” on the option that feels the best now. If we recognize the influence of short-term emotion, we can slow our reaction and create the space to make a better decision.</p>
<p>Step 5) Implement the solution, evaluate the results, and determine your next steps</p> <p><i>See the explanation to the right.</i></p>	<p style="text-align: center;">Overconfidence bias</p> <p>The overconfidence bias often occurs after we make a decision. We tend to fall in love with our choice. Our familiarity convinces us that we probably made the correct judgement. When we recognize this bias, we place more emphasis on statistics and real evidence, and not on our first impression that our decision is correct, simply due to our over-abundance of confidence.</p>

Now we add the last step in the process, how to use the critical thinking tools, and tie it all together.

- On **page six** you will see a chart that adds tools to the mix (the right hand column of the table).
- On **page seven** you will find an all-in-one summary document. This chart collates all the information from the previous six pages together in a one-page review document (and all-in-one summary diagram) that we’ve included for you to print and use as a reference tool.

Critical Thinking Tools

The Issue	The Critical Thinking Tools
<p style="text-align: center;">Step 1 Define the problem</p> <p>then find a specific tool to overcome</p> <p style="text-align: center;">Status Quo Bias</p>	<p>Getting started is important, but getting started by doing the right thing is even more critical. If we expose the root cause, all our subsequent work will be focused where it has the most effect. That is where the five whys tool is so effective.</p> <p>The five whys – The five whys is a tool that directs you to ask the why question five times (less or more as needed) in order to get to the root cause of the issue. Example – We think Purchase Orders (POs) take too long to process.</p> <ol style="list-style-type: none"> 1) Why does it take 18 days to process a P.O.? Answer – It goes to 6 people. 2) Why does it go to 6 people? Answer – They all have to sign off on the order? 3) Why do they all have to sign off? Answer – That’s how we’ve always done it? 4) Why is that? Answer – There was some dishonest PO behavior in the past. <p>And now we have the root cause. This is about preventing theft. If we can find a way to keep the system honest with fewer signatures, then we have a solution.</p>
<p style="text-align: center;">Step 2 Gather relevant information</p> <p>then find a tool to overcome</p> <p style="text-align: center;">Confirmation Bias</p>	<p>Ask probing and disconfirming questions</p> <p>Questions are a powerful tool for the problem solver. Questions such as:</p> <ul style="list-style-type: none"> • Who is involved? Are you sure there are no other stakeholders? • What is the history? Could this issue be associated with other processes? • Are there best practices we should look at? • Has anyone else faced this problem at our organization? • Are you sure there is nothing else related to the issue? And so on.
<p style="text-align: center;">Step 3 Generate multiple alternate solutions</p> <p>then find a tool to overcome</p> <p style="text-align: center;">Narrow-Framing Bias</p>	<p>Move from this OR that, to this AND that</p> <p>This is a simple technique but don’t dismiss it because it seems unsophisticated. The narrow-framing bias is a powerful one. When you find yourself asking, “Should I do this OR that?” stop yourself. Make the mental switch to this AND that. Never stop at a single option, but generate as many as you can that seem even remotely feasible. You can always delete an option, but the exercise of generating many options may open new and useful avenues of thought to follow.</p>
<p style="text-align: center;">Step 4 - Examine the alternative solutions and choose the superior one</p> <p>then find a tool to overcome</p> <p style="text-align: center;">Short-Term Emotion</p>	<p>Consider – is this loss aversion?</p> <p>Fear of loss is one of our stronger emotions and is considered a powerful bias as well. The behavioral science literature says that the power of a loss is felt four times as much as that of a similar gain.</p> <p>So how can we use this to our benefit?</p> <p>Examine all the alternatives, not only in terms of what can be gained, but also considering what could be lost. (Note: This is often called “opportunity cost”) Is the potential loss that may be incurred by a solution keeping you from choosing it? Have you considered the potential loss of every alternative with the same rigor as you examined their potential gains?</p>
<p style="text-align: center;">Step 5 - Implement, evaluate, and implement next steps</p> <p>then find a tool to overcome</p> <p style="text-align: center;">Overconfidence Bias</p>	<p>Examine the evidence. Look at the proof or the results.</p> <p>In other words, don’t fall in love with your solution simply because you created it. This is the time to consider the facts in a completely dispassionate manner. If you didn’t achieve the results you wanted, perhaps it is time to reconsider an alternate solution. This last step in the process should be an experiment. If the results are positive, you repeat or scale up the solution. If the results are negative, you pivot, change directions, or try an alternative solution.</p>

All-in-One Summary Diagram (bias, a model, and tools)

Steps 1-5	Unconscious Biases	Critical Thinking Tools
Step 1 Define the problem	<p style="text-align: center;">Status Quo Bias</p> <p>This bias keeps us from doing anything. It can paralyze us or make us seem lazy, when we can't decide what to do.</p>	<p>The Five Whys – Ask why five times to get to the root cause of the problem.</p> <p><i>Other tools include: The fishbone diagram, the drill-down technique, and many others*</i></p>
Step 2 Gather relevant information	<p style="text-align: center;">Confirmation Bias</p> <p>The confirmation bias can lead to our gathering only information that is “self-serving” or information that reinforces our previously held beliefs.</p>	<p>Ask probing and disconfirming questions Questions are a powerful tool for the problem solver.</p> <p><i>Other tools include: Observation, interviews, surveys, focus groups, web searches, and many others*</i></p>
Step 3 Generate multiple alternate solutions	<p style="text-align: center;">Narrow-framing Bias</p> <p>This bias tells us we only need to examine a maximum of two alternatives. It keeps us from seeking potentially superior solutions.</p>	<p>Move from this OR that, to this AND that When you find yourself asking, “Should I do this OR that,” stop yourself. Make the mental switch to this AND that. Never stop at a single option, but generate as many as you can that seem even remotely feasible.</p> <p><i>Other tools include: Brainstorming, Mind-mapping and many others*</i></p>
Step 4 Examine the alternative solutions and choose the superior one	<p style="text-align: center;">Short-term Emotion Bias</p> <p>This bias gets in the way of a rational examination of the risks or costs of the long-term results of a decision. Our short-term emotion is interested in the here and now.</p>	<p>Consider – is this loss aversion? Fear of loss is one of our stronger emotions and is considered a powerful bias as well. Examine all the alternatives, not only in terms of what can be gained, but also considering what could be lost.</p> <p><i>Other tools include: The ABC method of self-management, getting an observer’s perspective, and many others*</i></p>
Step 5 Implement the solution, evaluate results, determine next steps	<p style="text-align: center;">Overconfidence Bias</p> <p>The overconfidence bias often occurs after we make a decision. We tend to fall in love with our choice.</p>	<p>Examine the evidence. Look at the proof or the results. In other words, don't fall in love with your solution simply because you created it. This is the time to consider all the facts.</p> <p><i>Other tools include: Conduct a pre-mortem, Set a tripwire (from “Decisive”, Chip and Dan Heath), and many others*</i></p>

* Information about these other tools can be found in some of the excellent courses and books cited on the resources and references page (page 8). See also bottom of page 8 (More Information about Critical Thinking Tools)

Resources and References

Classroom-Based Courses to Deepen your Problem-Solving and Decision-Making Skills.

- Essential Analytical Skills (one day)
- Critical Thinking Tools (one day)
- Overcome Unconscious Bias to Make Better Decisions (one day)
- Completed Staff Work (the recommended problem-solving method for CA state govt. a two-day course)
- There are many more essential skills and tools courses for the analyst including: presentation skills, writing for the analyst, project management, interpersonal skills, and many others.

All courses are available through CALHR www.calhr.ca.gov/Training or through the Los Rios CCD Government Training Academy, www.losrios-training.org or at 916.563.3232 (Bruce Winner)

CALHR website for analysts (What it Takes to Be a Successful Analyst)

Resources specific to the CA State Analyst (watch for competency updates fall 2016)

www.calhr.ca.gov/employees/Pages/successful-analyst.aspx

Problem-Solving Models or Methodologies

- *Asking the Right Questions*; Neil Browne and Stuart Keeley, 1994
- *Solving Problems: The Basic Process*; Zenger-Miller, 1998
- *The Thinker's Toolkit; 14 Powerful Techniques for Problem-Solving*; Jones, 1998
- *Decision Traps: The Ten Barriers to Brilliant Decision-Making and How to Overcome Them*; Russo and Shoemaker, 1989.
- *Winning Decisions: Getting It Right the First Time*; Edward Russo and Paul J. H. Shoemaker, Currency Books, 2012

A few good general websites for problem-solving and related resources - www.mindtools.com and <http://managementhelp.org/personalproductivity/problem-solving.htm>

Critical Thinking Tools and Skills

- *Critical Thinking – An Introduction*; Alec Fisher, 2001
- *Socrates' Way*; Ronald Gross, 2002
- *Critical Thinking Skills Success*; Lauren Starkey, 2004
- Good general website for all things related to critical thinking - www.criticalthinking.org

Overcoming Unconscious Bias or Irrationality “Behavioral Economics”

- *Decisive: How to Make Better Choices in Life and Work*; Dan and Chip Heath, 2013
- *Thinking Fast and Slow*; Daniel Kahneman; Farrar, Straus and Giroux, 2011
- *Predictably Irrational*; Dan Ariely, 2007
- *Nudge: Improving Decisions about Health; Wealth, and Happiness*, Thaler and Sunstein, 2007

There are many good online resources on behavioral economics. A few of them include:

- www.heathbrothers.com (some simple resources and easy to apply)
- www.behavioraleconomics.com/BEGuide2014.pdf (a free deep dive into BE)
- www.edx.org “Behavioral Economics in Action” a free MOOC (massive open online course)

More Information about Critical Thinking Tools

On pages six and seven, you were introduced to a number of critical thinking tools. The ones on page six were briefly explained, but the ones on page seven (the chart) are named (in bold) and placed in the problem-solving step where they are most appropriate or useful in the decision-making process. Many of the courses and books cited above will provide additional information on these tools and how to use them. Otherwise, go the web and find scores of pages of free information about any of the tools cited on page seven. This site, www.mindtools.com (cited above), is a great site, but there are scores of additional online resources.