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|  |  | Problem Solving  Identifying, Classifying and Solving problems | | |  | |
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|  | **Introduction**  In a modern era where constant thrive and demand for better and faster things to arise in an ever-changing rapid world of business and technology, we are always faced with problems of varying magnitudes. This report will make the attempt of identifying, classifying and solving problems, techniques to do so and how to avoid problems in the first place by resorting to standards and best patterns.  Author: K.P.I. Shenesh Perera  IDM | | | | |  |
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Contents

[#1: Identifying Problems 3](#_Toc1688222)

[#2: Breath-in & Breath-out 4](#_Toc1688223)

[#3: Identify the cause 5](#_Toc1688224)

[#4: Research & generate ideas 6](#_Toc1688225)

[#5: Implement the solution 6](#_Toc1688226)

The Process of Problem Solving

# #1: Identifying Problems

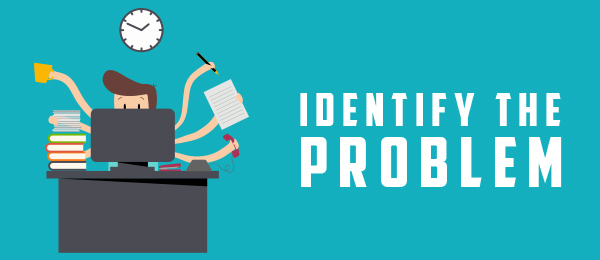


Figure 1.0, techaheadcorp.com, shashank, 21/01/2017

The most important part of the problem solving procedure is to identify the problems correctly. The way you identify a problem will determine how you can attempt solve it in the first place. For example, if one receives a complaint about one of your fellow team members in a project from a client, the solutions you come up will all be very different based on what you’ve identified as the problem. Is it the client or is it the team member? This question’s answer is what you will define as the problem, therefore the procedures you will take to solve it will change.

If you identify the problem as a bad move on the team member’s part then your solution will range from advising to eliminating your team member, if you identify the problem as a poor expectation from the client then your solution will range from helping him understand or simply cutting ties off with the client.

What if the client was right and the team member was wrong? Or the reverse situation? But you’ve decided the wrong party as the problem and made some severe action. This will give rise to yet another problem.

This is why you must properly set your sights, take your time and identify your problem by considering numerous variables that align in order to set you in the correct path.

In order to identify your problem, you must gather information on all variables that are assumed to part of the situation. Then the easiest yet the most time-consuming method is to change each variable one by one to see if the situation turns out to be better or the hardest yet the least time consuming method is to perform thorough analysis, understand behaviors, gauge the variables and spot the anomaly in the situation that’s going out of the scope of what defines as natural.

In the client/team member situation, you can try changing the team member serving the client to the best among the team and see if the client is happy, if he isn’t then the client is the problem, if he isn’t then something that the team member did made the client unhappy therefore the team member is wrong. This is time consuming.

The other way is to take the product that is being put out by the team member and see if it matches the agreed level of expectation of the client, this takes less time but is difficult. If the product quality doesn’t match the agreed level of expectation, then the team member has performed poorly if not the client is changing his words.

# #2: Breath-in & Breath-out



Figure 1.1, adrenalfatiguesolution.com, FAWNE HANSEN, 29/03/2015

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Now you’ve identified your problem, the first wrong thing that most people do is to panic, lose their composure or be afraid of the problem leading to stress which is another problem to deal with. This is the reason why certain problems can’t be solved, because problems keep getting added to problems and there is huge pit of fire draining the life energy from everyone involved.

Be it business, IT, engineering etc. one must always remain rational and composed, this is what gives rise to a professional and formal leader. As such one must always after identifying problems remain calm, because to solve the problem you need all the concentration and focus you can get.

This is the reason why most powerful, influential and most informed leaders of the world have come to make decisions that are hopelessly flawed. This is due to 2 factors relating to the neuroscience of our brain, understanding these 2 factors helps one to remain calm.

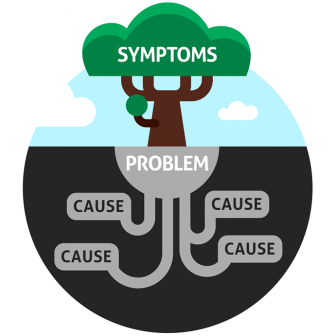
As humans we depend on two dissimilar factors known as Pattern Recognition and Emotional Tagging.

Pattern recognition is a complex process that binds information from almost 30 different parts of the brain, when a human is faced with unknown information or is put in a new situation, the primary instinct our brain bases us on is to make assumptions based on prior experiences and information. But this can easily mislead us. When a human is faced with a similar situation to what has been previously experienced, our brain may lead us to thinking that we understand the situation when we clearly don’t.

Emotional tagging is the process by which the emotional aspect of the new information or situation tags or relates itself to situations experienced in the history. This is what leads to the decision whether if or if not we should pay attention to something. When the current situation relates to a bad memory, often the efficiency of our productivity and abilities are easily lost.

Now, what is the point in understanding these 2 factors? Understanding and knowing that these 2 factors lead to bad decisions will help one to make better decisions. In other words, if one knows about pattern recognition and emotional tagging, one will make the attempt to avoid giving into their senses and maintain a more rational perspective of things.

# #3: Identify the cause

Once you have defined the problem and taken the correct perspective of it, you are ready to dig deeper and start to determine what is causing it. You can use a simple table to help you perform a cause and effect analysis or perform a root cause analysis. Pull your team together and ask them what the possible causes are and start from there.

So why identify the cause before solving the problem? This is simply to make sure during the process of solving the problem, the cause doesn’t cause another problem.

If one considers a problem as the gap between where one is now and where one wants to be, the causes of the problem are the limits that is preventing him from closing that gap immediately.

This type of analysis is important to make sure solutions identify the actual causes of the problem instead of the symptoms of a problem. If your solution fixes a symptom instead of an actual cause, the problem is likely to reoccur since it was never truly solved.

Figure 1.3, tonex.com, Laura, 14/05/207

# #4: Research & generate ideas

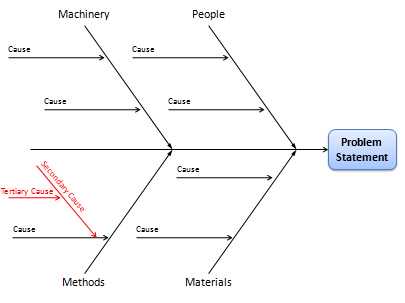


Figure 1.4, project-management-skills.com, Michael Martinez

Once all the identification and the causes have been done, then it finally comes down to finding ways to eliminate the problem from the root. In order to do this, brainstorming and mind mapping problem solving techniques become key. These 2 techniques are very common and almost anyone knows to do them, to brainstorm assemble your team and start throwing out ideas on how to solve the problem, understand where each person is coming from and try to reason out which solution will be the best.

To perform mind mapping, it is simply the matter of visualizing a whole system of variables, facts and figures so that finding a solution becomes easy.

In these stages, fishbone diagrams, Ishikawa diagrams and cause and effect diagrams assist brain storming and mind mapping within a team. Once a decent number of solutions have been put to the table, you can start researching about them to see if actually performing them will be feasible.

Refer to this [link](http://www.project-management-skills.com) to understand more about how to draw a fishbone diagram.

# #5: Implement the solution

This is the last stage in the process of problem-solving, it is to implement the best chosen solution. One must keep in mind that when attempting to implement a solution it must not break the system, it must not create a new problem nor should it create a cause for another problem, because if it does then you will just be thrown back at step 1.

Below are a few problem solving techniques:

## The round-robin problem solving technique

If you are not satisfied with the traditional solution, most of the team members just sit and listen just hoping that someone will fix everything or most of the energetic folks are preventing the rest of the members from giving any opinion, then it’s best to test out the Round-Robin technique built around the concept that every participant is involved in the brainstorm session actively.

The rules are the following:

* People take turns to contribute ideas, feeling free to ‘pass’ if they don’t have a thought to share in that round.
* The session is over when everyone passes.

## Wear the thinking hats problem solving technique

A “thinking hat” is more or less of a mindset you should maintain during thinking something out, here are 4 different thinking hats a team could employ during a meeting or brainstorming session:

* **White Hat**: The neutral White Hat works with facts and figures that are known or require solving. Wear this hat when a problem has just emerged.
* **Red Hat**: When wearing the emotional and intuitive Red Hat, you can reveal your gut reactions to an idea, express your emotions freely and share fears, likes, dislikes, loves and hates.
* **Black Hat**: Use the cautious Black Hat when you want to get the critical viewpoint. This judgment that helps decrease the chances of making a poor decision.
* **Yellow Hat**: The sunny and positive Yellow Hat helps identify the value and positive sides of ideas and counterbalance the judgmental thinking of Black Hat.

## Failure Mode and Effects Analysis problem solving technique

FMEA is a sort of advanced problem solving technique that is often performed in larger industries. It helps companies prevent potential issues.

Using this method, you analyze each component of your strategy and predict how and when it can fail. In other words, you try to find the so-called ‘failure modes’. Then you determine the effect of each failure mode and the likelihood of its occurrence. Eventually, list the actions you have taken (or you are going to take) to ensure that the issue does not reoccur in future.

# Problem Solving techniques I used during the execution of my project

During my project I used 2 of the 3 mentioned above techniques and followed the whole process of problem solving I have mentioned whenever I came across a problem.

For example, the device I have runs the Windows 8.1 operating system, I had a copy of the Microsoft Office 2019 Project software, the software installer is not compatible with Windows 8.1.

So I had to do some research as to how I can fix this problem and get Project to work.

I discovered through research that the installer would run only in a Windows 10 operating system, so the problem was identified, which was my operating system’s version.

Then my only options were to either format my device to Win 10 or use a lower version of Project, I didn’t want to sacrifice an opportunity to use the latest Project version on an actual project. I didn’t want to format either.

So through pattern recognition, I came up with the solution of making a windows 10 virtual disk image and running it on virtual box. To come to this solution, I had to adopt the white hat and yellow hat mind sets, and a bit of research on exactly how I would run a VDI on virtual box. I had to brainstorm at one point when I ran out of options and I came to this solution.

This whole process of problem solving is based on my experiences and how I’ve solved my problems this far in life and they have never go wrong, therefore my reasoning behind this process is valid. As explained in the above situation, if one sticks to my process of problem solving and use the mentioned problem solving techniques they will definitely come to a point where the problem is solved.