Module 7: Creative Problem solving and Decision Making

PROFESSIONAL DESIGNATION ONLINE PROGRAMME

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MODULE 7 – CREATIVE PROBLEM SOLVING

Problem solving is one of the necessities of life. We solve problems every day – while some problems are big, most are small and every now and then a life or death problem comes along!

Problem solving becomes like second nature – at times you do not even realise that you are using a method to solve a problem! The human brain is wired to work as fast and efficiently as possible, which means it looks for short-cuts wherever possible. When solving problems, we use problem solving methods (habits) that are most familiar to us. That does not mean it is the best or the most creative solution possible.

Problem-solving is an art, and as humans we can either do what we have always done, which means receiving the same results, or we can learn about the process of problem-solving and see it as a new habit, an attitude or a mind-set, rather than just a tool.

MODULE OBJECTIVES

At the end of this module, you should be able to:

- Identify what a problem is and ways to resolve it
- Apply different approaches to solve problems
- Identify the common barriers of problem-solving and strategies to overcome them
- Use a framework for effective decision making
- Use creative thinking to resolve problems

PROBLEM SOLVING

WHY IS PROBLEM-SOLVING IMPORTANT AND HOW DOES IT IMPROVE YOUR LIFE?

Problem solving is one of the necessities of life. We solve problems every day – while some problems are big, most are small and every now and then a life or death problem comes along!

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When we take a step forward into creative problem-solving, it becomes a series of ongoing possibilities or opportunities.

- It helps us develop a proactive way of living, where problems are identified more as challenges to be engaged creatively to deepen our personal learning. That is when the other benefits of problem-solving become evident.

Example: World famous leaders – those who have excelled at solving massive human problems – such as Martin Luther King, Steve Jobs, Gandhi, and Nelson Mandela developed their creativity, leadership, persistence, and collaborative cooperation as a result of engaging more deeply in the problem-solving process.

- It encourages groups of people to learn to cooperate with each other for the common goal of discovering the best solution, which in turn necessitates developing and using good communication skills.
- It teaches flexibility and creativity, which can produce a more positive attitude towards learning in general. The process of learning something new becomes more interesting and enjoyable.
- Solving problems can stimulate curiosity and trigger active participation in the learning process. This can bring subjects being studied 'alive', and result in increasing personal insights, and lateral, creative thinking.
- It can produce increased feelings of personal competency. Once we have connected to the problem and successfully found a solution, it just *feels* good to master something successfully.
- What is discovered in one situation from problem-solving, can often be generalized to other areas in life. With repetition of generalizing solutions to other problems, patterns emerge, which allows for greater understanding and leads to more effective problem-solving.

Albert Einstein, a great problem solver once said: "If I had an hour to solve a problem, I would spend 55 minutes thinking about the problem, and five minutes thinking about the solution."

WHAT IS A PROBLEM?

A problem is anything that is difficult to overcome:

- **A difficult obstacle or goal** – a challenge that you need to find a solution to
- **Deviation from the standard** – if you need to determine the cause of a problem. A situation where what usually works well, suddenly does not!
- **A gap between the real and the ideal** – things are great as they are for now but could be better in the future. It is working jut not the way you want it to.

PROBLEM-SOLVING APPROACHES

GROW MODEL

The GROW model of problem-solving is a simple, straightforward four-step model which is useful in any goal-directed business.

GROW is an acronym for the four steps, which lead you in a linear fashion from clarifying the problem to finding a solution.

G	**Goal** – the problem you want to solve and how you want to solve it. Ensure that your goal is SMART and stated in a positive way. Make sure you know what you want the end goal to be / look like.
R	**Your current reality** – look at what your current reality is. Look at facts and do not make assumptions. Describe what the real situation is, what has caused it, what is the impact and why it needs to be addressed.
O	**Options and Obstacles** – this step looks at identifying and clarifying possible options and potential challenges to achieving your goal. Brainstorm the various possibilities. There will be time later to look at which option makes the most sense. Focus on as many options as possible, even if some do not make logical sense. Use as much creativity as possible to really get your imagination going. After you have spent time brainstorming, you can look at the advantages and disadvantages of each option.
W	**Way forward or will** – this is where you make the decision on what action you will take, by when and who will be accountable for delivering the actions.

The GROW model is simple, but when each step is applied conscientiously, it can help with identifying and thoughtfully planning of how you are going to achieve your goal.

PLAN-DO-CHECK-ACT (PDCA)

PDCA, sometimes called PDSA, the "Deming Wheel," or "Deming Cycle," was developed by renowned management consultant Dr William Edwards Deming in the 1950s. Deming himself called it the "Shewhart Cycle," as his model was based on an idea from his mentor, Walter Shewhart.

Deming wanted to create a way of identifying what caused products to fail to meet customers' expectations. His solution helps businesses to develop hypotheses about what needs to change, and then test these in a continuous feedback loop.

Step 1: P – **Plan** – first you need to identify and understand your problem, or the opportunity that you want to take advantage of. It is a process of exploring information, defining your problem, generating, and screening ideas and developing an implementation plan. At the end of this stage you will state what our expectations are if the idea is successful and your problem is resolved.

Step 2: D – **Do** – Once you have identified a potential solution, test it with a small-scale pilot project. This will allow you to assess whether your proposed changes achieve the desired outcome, with minimal disruption to the rest of your operation if they do not. For example, you could organize a trial within a department, in a limited geographical area, or with a demographic.

As you run the pilot project, gather data to show whether the change has worked or not. You will use this in the next stage.

Note: In this situation Do means "try" or "test". It does not mean you implement fully. You only implement in the Act stage.

Step 3: C – Check – at this stage, you analyze your pilot project's results against the expectations that you defined in Step 1 to assess whether the idea has worked or not. If it has not worked, you return to Step 1. If it has worked, you go on to Step 4.

You may decide to try out more changes and repeat the **Do** and **Check** phases – do not settle for a less-than-satisfactory solution. Move on to the final phase (**Act**) only when you are genuinely happy with the trial's outcome.

Step 4: A – Act – this is where you implement your solution. But remember that PDCA is a loop, not a process with a beginning and an end. This means that your improved process or product becomes the new baseline, and you continue to look for ways to make it even better for your organization or customers.

The model is a simple, yet powerful way to resolve new and recurring issues in any industry, department, or process. Its repeated approach allows you and your team to test solutions and assess results in a waste-reducing cycle.

It instills a commitment to continuous improvement, however small, and can improve efficiency and productivity in a controlled way, without the risks of making large scale, untested changes to your processes.

Going through the PDCA cycle can be much slower than a straightforward implementation and it might not be the appropriate approach for dealing with an urgent problem or emergency.

It also requires significant "buy-in" from others, and offers fewer opportunities for radical innovation, if that is what your organization needs.

Apply This to Your Life:

While PDCA is an effective tool for businesses, you can also use it to improve your own performance. Identify what is holding you back in your career, and how you want to progress. Look at the root cause of any issue and set goals to overcome these obstacles (Plan).

When you have decided on your course of action, test different approaches to getting the results that you want (Do). Review progress regularly, adjust your behavior accordingly, and consider the consequences of your actions (Check). Finally, implement what is working, and continually refine what is not (Act).

COMMON BARRIERS OF PROBLEM-SOLVING

MENTAL SET

When we are solving problems, we often tend to fall back on solutions that have worked in the past. In many cases, this is a useful approach that allows us to quickly come up with answers. In some instances this strategy can make it difficult to think of new ways of solving problems.

These mental sets can sometimes lead to rigid thinking and can create difficulties in the problem-solving process. While in many cases we can use our past experiences to help solve the issues we face, it can make it difficult to see novel or creative ways of fixing current problems.

For example: Your vacuum cleaner has stopped working. When it has stopped working in the past, a broken belt was the culprit. Since experience has taught you that the belt is a common issue, you replace the belt, but this time the vacuum continues to malfunction. You ask a friend to come to look at the vacuum and he discovers that one of the hose attachments was not connected, causing the vacuum to lose suction. Because of your mental set, you failed to notice an obvious solution to the problem.

FUNCTIONAL FIXEDNESS

Functional fixedness is a sub-category of a mental set. It has a cognitive bias which is focused on using objects in an expected, or normed way. For example, if you are looking to use a screwdriver to screw something together, but you cannot find the screwdriver, what do you do? If you are struggling with functional fixedness, you spend a lot of time searching for the screwdriver to ensure your success with the task at hand.

If you are not struggling with functional fixedness and can think more creatively in a more lateral fashion, you might think to yourself, "I could use the tip of a butter knife, instead" (or a pair of scissors, the edge of a coin, or a paperclip etc.).

Karl Duncker examined the concept of functional fixedness in the 1930s.

Long before Duncker came along, one most unfortunate example of functional fixedness had already infamously occurred, costing many, many lives, when the Titanic sank. Even though it was (obviously) very close to an iceberg when it went down, no one on the ship thought to climb onto the iceberg and wait there for the four hours it would have taken to be saved by the other ship. Instead, many people perished from hypothermia and/or drowning from waiting in the icy cold water for rescue. That is a good (if heartbreaking) example of functional fixedness. Everyone on board was thinking of the iceberg as being *the source* of the problem (which it was), rather than *also* a potential solution (which it also could have been).

Tragically, more than 1,500 people died as a result, who might well have been saved had anyone been able to think more flexibly.

How can functional fixedness be helpful when it is the opposite of innovation? Though it sounds like a real downer in terms of creativity, it can be efficient in everyday living. Many times, we do not need to think creatively to solve simple problems. Like a mental shortcut, looking at common, mundane ways of using objects can efficiently save on brain power. And that leaves us freer to tackle more novel and interesting challenges, ones that require more brain juice.

Here is one way of moving through this thinking challenge. It is based on functional fixedness research from one scientist who came up with a list of 32 categories based on the physical features of objects. Results from this research had suggested that, in fact, of the 32 categories, most people overlooked 20.7 (usually the ones which are not associated with how the object is commonly used).

Missing out on about two-thirds of potential solutions is not good when problem-solving.

The idea of the generic parts technique was born. When using this technique, you first want to break each object down into as many parts as possible, then ask yourself these questions: 'Can I break it down further?' 'Does the way I've broken it down suggest a use for the object?'

Looking back to the Titanic example, the name 'iceberg' suggests something which can hit and sink ships. If instead the iceberg is described as something that is 200 to 400 feet long and floats, the opposite information emerges. Maybe it can be used to save people from a sinking ship. It is, after all, stable, too big to sink, and it floats!

When we stop thinking from inside the box of conformity and consider a space outside of 'been-there-and-done-that,' the more obscure bits of information about an object may now move out from the shadows into the spotlight of consciousness and provide the basis for an innovative solution.

The opposite skill of functional fixedness, which this technique develops, is called divergent thinking.

There are games people have created to increase your divergent thinking. For example, you can ask yourself questions like, 'How many uses for a paperclip can I imagine?' When you play with this, you are practising developing new neural pathways in your brain that encourage new associations. This means new and different ways of thinking, both in general and when faced with a problem.

The less your thinking is bound by functional fixedness, the more space your creative juices will have to flow and the more inventive your solutions to problems will be.

RATIONAL VERSUS ORGANIC APPROACH

This is where all those other factors and varieties of problem-solving methods all come together. As humans, we have personalities and decided preferences.

There are two broad approaches to problem-solving, which seem reflective of whether your brain is more left or right brain dominant. (Note: this is a continuum, so you may find your own natural style is somewhere more in the middle, than clearly at one end or the other).

Rational Approach

Someone who prefers the rational approach likes to use a logical, comprehensive, detail-oriented, left-brain way of approaching a problem.

This might include a linear process, which goes logically from one step to the next. Example:

Step 1 – defining the problem, moving to **Step 2** – looking thoroughly at all the possible underlying causes

Step 3 – meticulously examining all the options to resolve it

Step 4 – carefully selecting what appears to be the best choice

Step 5 – ensuring the implementation plan is orderly and thorough and that no stones are left unturned in predicting outcomes

Step 6 – monitoring the plan's implementation with scrupulous scrutiny

Step 7 – re-checking in a comprehensive fashion whether the problem was resolved or whether further steps are needed.

As you can see, this is a very highly organized process. It focuses on an orderliness, which can be helpful in complex situations where chaos is reigning. This approach also creates predictability and helps people feel relaxed and safe as if things are being well taken care of.

This process can take a great deal of time and effort, and life can be chaotic and unpredictable under even the most rigorous circumstances. There are no guarantees the unexpected will not show up and create more havoc, using this process. Life tends to be like that.

Organic Approach:

People who tend to cluster more towards this end than the rational end of the spectrum, recognize that the world, and organizations within it, are not quite as mechanistic and entirely predictable as to be able to proceed in a smooth, orderly fashion, just solving one problem after the one before it.

If you like this approach, you will likely prefer to enjoy the journey, rather than over-focusing on the destination. You will enjoy tweaking the ongoing process as you go along.

The biggest advantage of this organic approach is its high level of adaptability and flexibility when facing and explaining the unexpected and often chaotic changes, which happen in both life and even the best-laid business plans.

The biggest disadvantage of the organic approach is that it can be 'disorganised,' lacking a clear frame of reference. This can make it harder for people to feel comfortable, to communicate clearly, and to measure the new solution's progress. When a problem recurs, it can be helpful to have a more thorough look at the situation within a more rational approach.

As in all things in life, moderation in both approaches (and knowing when to use each in a flexible way which is tailored to the specific needs, rather than following one or the other approach) is likely to provide the best supports and the most options in problem-solving. This is, perhaps, an excellent example of how 'both/and' strategizing can be more useful than 'either/or' thinking.

PROBLEM-SOLVING STRATEGIES

APPRECIATIVE INQUIRY

So far, we have looked mostly at problems as just that. Problems. Obstacles to growth. Challenges. Stuff that need fixing.

What happens if we flip that coin over and look instead at what is going right?

Then, do more of that.

This way of looking at a topic was first spearheaded in the mid-1980s, at Case Western Reserve University by David Cooperrider.

A good beginning place to understand this innovative approach is to look to the meaning of the words themselves. To 'appreciate' means to value and recognize the attributes or contributions of people and/or things. 'Inquiry' means to discover and explore within the energy of being open to new potentials and searching to understand something more deeply.

When you put those two words together and are willing to appreciate what is already valuable and good in the current situation, you then open to learning and discovering new ways to create positive change in moving forward.

Appreciative Inquiry even affects even how you define the situation or topic. Just think about this: if you are looking for what goes right, rather than problems or things that need fixing, you are likely to come up with some *quite different* information about the situation. This is one way of bringing previously unseen or unacknowledged strengths into the foreground where they can be further grown and developed.

The approach is known for its "5 D's". These are the five steps needed, to help support you through the Appreciative Inquiry process: Define; Discover; Dream; Design; and Deliver/Destiny.

Step 1 – **Define, or "What is it we want to explore"** – this is where you analyze the situation. Avoid the temptation of focusing on the problems (since that is how we have all been trained to look at solving problems) and instead focus on the positives and strengths. In defining this situation, choose words which reflect what is already present as strengths. Make sure you sidestep value-laden, critical potholes in the road and choose instead to explore as many avenues and possibilities for positive change as possible. It is good to keep your topic broad to allow more space for seeing the strengths.

Step 2 – **Discovery, or "noticing the best of what is"** – this is where you put on your detective caps and look at the best of the best from your past, in addition to what is working well now. It is good to

involve as many people in this process as possible to get as many viewing points and as much breadth as possible.

Ask questions and invite success stories to really get people focusing on what is most appreciated or valuable from their viewing point.

Some helpful discovery questions could include the following: What attracted you (to your employees) most about working in this company? For the company to be successful, what are the most important aspects (which are already present to some degree) that need to be either maintained or grown? What are their (employees') stories about when they felt most enthusiastic and/or proudest about their work?

Step 3 – **Dreaming, or "what might be possible"** – what could be more important than clarifying, defining, identifying your dream about what might be possible? Dream big here. There is little point in dreaming small. Use what you have already defined and discovered in terms of strengths, and now dream them even bigger. Reinforce them. Create opportunities for people to imagine that it is already so, and how this will feel.

If it is not clear yet how to move your strengths forward into this step, you can bring together a group of dreamers to brainstorm new, creative possibilities, built securely on what is already emerging as your greatest strengths. When you have envisioned your way forward with some big and beautiful dreaming, now it is time for the following.

Step 4 – **Designing, or "what should be possible"** – this step builds on the last. It is where you put all the practicalities in place to manifest your vision. You want to take care of the processes and strategies which will give your dream lift. You can enrich your ongoing discovery here with questions related to the impact on relationships, people, your company's culture, and systems.

Step 5 – **Deliver/Destiny, or "what will be possible"** – in this final step, the implementation of your plan, your dream will require lots of preparation and planning. You need to keep the Dream (from your third step) front and center. With all the different people with their various roles/functions, everyone needs to be working to manifest the dream. So, when the Dream is the focal point for everyone, all the changes which are happening in all the different departments will all work collaboratively to birth your Dream.

In the end, as in the beginning and within each step of this model, the best successes come when it evolves out of all the participants' experiences and contributions. Then everyone can own the new Dream together.

The Appreciative Inquiry model can be used repeatedly for continuous, ongoing improvement. Who does not appreciate having positive outcomes for positive thinking recognized and validated? It purely feels good. What a great concept and motivator that can be!

THE SIMPLEX PROCESS

In his 1995 book called *The Power of Innovation: How to Make Innovation a Way of Life & How to Put Creative Solutions to Work*, author Dr. Min Basadur shares a problem-solving technique that is both comprehensive and suitable for a broad range of challenges or problems.

The Simplex process has eight steps, which together form a circle. The circle is as important as each of the steps, reflecting the benefits of continuing the process and recursively re-working each of the steps, heading towards ongoing growth. Remembering that "problems are landmarks of progress."

The eight steps in the Simplex Process, while like many problem-solving methods, ensure a thorough process, which does not miss any crucial steps.

Step 1: Problem-Finding – ask a series of questions that are intended to ensure clarity around whether you are addressing the right problem or not. These questions can include the following possibilities:

- Are there bottlenecks, or places where your work-flow slows down, which could be improved?
- What might your customers want you to improve? (You can look to customer complaints to discover possibilities.)
- What smaller problems are you encountering that could turn into bigger ones if unattended?
- What kinds of innovative things are your competitors doing that might improve your services?
- Are there changes you could make now in predicting future trends, which would put you/keep you ahead of the game?

If, after asking all these questions, you are still not sure whether you have identified the right problem, no worries. Wait until you get to step three before addressing this worry.

Step 2: Fact-Finding – you need to find as much information as possible about the potential problem areas. Dig deep. Focus on how different people in different roles view the problem. Look again to your competitors to see how they may be handling a similar problem effectively. Research to see what is already been done (been there and tried that). Clarify what technologies or processes or services would be helpful and whether the benefits connected to solving this problem will be cost effective. In other words, is it worth the time, effort, and money needed to solve this problem?

Step 3: Problem Definition – at this stage, you will likely have a fairly good idea of the problem and the facts surrounding it. It is helpful to look at the scope of the problem identified; if it is too narrow, you could run the risk of just fixing a symptom of an underlying problem (the band-aid approach). Or, if you define it too broadly, you could bump into not having sufficient resources to address it effectively.

Two questions suggested by Min Basadur at this stage are the following: "Why?" (i.e. why does it matter?) and "What's stopping you?" Both these questions can help take a broadly defined problem and narrow it down more helpfully.

Step 4: Idea-Finding – this is the brainstorming step where you will want to generate as many possibilities as possible without evaluating or editing them yet! You will not know yet, whether one of those not-so-great sounding ideas could just lead you right to a great idea. Keep focused on lateral thinking and coming up with as many ideas as possible, no matter how wacky or impractical some of them may seem.

Step 5: Selection and evaluation – now that you have a bunch of potentially great ideas, you will want to identify useful criteria which help you sort the good from the bad. Now is the time to refine, evaluate, and choose the most promising option.

Step 6: Planning – once you have selected a solution which you feel is most promising, it is time to put it into action. You can use an action plan to help you identify the Five W's and the One H (who, what, where, when, and how). This is where you determine the plan of action with do-able steps.

Step 7: Selling the Idea – this important step cannot be under-emphasized. Even the best solution in the world will not go anywhere unless you can sell it to the decision-makers. In addition to your boss, these can also include other stakeholders or investors upon which this solution will impact. You will need to focus on how the needed practicalities impact on other parts of your system, such as the politics involved, people's anxieties about change, etc.

Step 8: Action – here you go! It is the action step: put your plan into practice and see the results.

Oh, look! Now that you have worked through the eight steps of the Simplex Process, you are back at step one again. Yep, time for another go-round. You want to use this tool repeatedly to ensure continuous improvement and growth.

SIX HATS

Six hats (developed by Edward de Bono who is known for his work on lateral, creative thinking) is a way of understanding and solving problems.

De Bono realized that when discussing a problem with another person, people could end up in unprofitable arguments. Upon further examination, he discovered it was because they were each representing a different way of looking at the problem. If they were talking apples and oranges, and assuming since the conversation was about fruit, they were both talking about the same fruit. From this he developed the Six Hats process of understanding problem-solving.

Imagine seeing the metaphor of six stacks of hats lined up on a table. Each of the six piles is a different color, and each represents a different way of looking at the problem. When discussing the problem, it is helpful if everyone collectively takes turns wearing the same colored hats. This way, each perspective, each color, has its turn being explored methodically, and everyone is focused on the same aspect of the problem-solving process.

It is a practical, interactive, and fast-paced way of moving forward, minus arguing. You learn to separate out the facts from the emotions, the creative from critical thinking, and the positive from the negative. All are valued but each in their turn.

Six hats can be used for ongoing process improvement, new designs/products, resolving conflict, facilitating meetings, group problem-solving, presentations, and decision-making. It can also be used in workplaces, individually, in couple relationships, or in families. Six Hats also works well cross-culturally.

The six stacks of colored hats can be used in the order presented or more flexibly, depending on your needs.

White Hat – ***"Just the facts please"*:** This hat looks at how you identify the problem, by examining the known and unknown facts and information.

Red Hat – ***Using your hunches and feelings*:** The red hat looks at the brainstorming process. You can explore fully by using and acknowledging the fullness of all your intuitions, gut instincts, feelings, and hunches. (No judgements allowed!)

Yellow Hat – ***Values* :** A yellow hat approach to the problem examines the benefits of the different alternatives with the accompanying consequences, allowing you to look at the feasibility and the reasons for optimism underlying each idea.

Black Hat – ***Caution*:** This is the amber light hat. When you put on the black hat, you are focusing on the potential difficulties and problems, what does not fit, and the consequences of each alternative, including why each idea may not work.

Green Hat – ***Solutions!*** The green hat invites you to focus on new ideas and possibilities within creativity to find a solution. You want to maintain a non-judgmental attitude to promote creativity flowing freely.

Blue Hat – ***Managing* :** This hat looks at how you manage the thinking process itself – how you choose your next steps, how you manage your action plans, and how you evaluate the solutions and conclusions. You will want to keep everyone focused on the topic while wearing the blue hat, remembering the goal.

Can you see where, outside of this process, if you have someone figuratively wearing a blue hat and someone else wearing a black or a green hat, this could create a whole series of challenges in communication?

Even though each person is talking about the same problem, their different assumptions, and different ways of processing their hat can result in some very messed up communications. You know, the kind that can go something like this: 'I know you think you understand what you thought I said, but I'm not sure you realize that what you heard is not what I meant' (Alan Greenspan).

Alternatively, when the Six Hat information is acknowledged by all and used methodically, all six hats get their turn being addressed in parallel fashion, the process ensures a systematic overview of each method of focusing on the issue at hand, resulting in a smoother communication process and a more thorough assessment of all the viewing points. Result? A more comprehensive problem-solving process, leading to a more robust solution.

BRAINSTORMING

We have used the term *brainstorming* in many of our discussions about problem-solving. It plays well in just about any sandbox when it comes to problem-solving.

What does it really mean to brainstorm effectively?

In 1953, Alex Faickney Osborn first popularized the term brainstorming in his book *Applied Imagination*, where it was defined as a process "to generate a long list of ideas in a group, to develop a better solution to a given problematic situation in an organization."

WHY BRAINSTORM?

For problem-solving, brainstorming helps to find alternative solutions, search out root causes, support good decision-making, and/or identify issues. It increases innovation, initiative, profitability, morale, and efficiency and it is great for team building in a friendly, relaxed, safe atmosphere.

Brainstorming is an incredibly powerful technique that can be used equally well by individuals and groups.

Additionally, it brings teams together and helps them collaborate successfully with each participant having a chance to contribute, no matter what their viewing point.

SOME GENERAL GUIDELINES

- Judgement and criticism are not allowed in initial stage of generating creative ideas.
- You want to record every idea no matter how unusual. You never know; it may just lead to other ideas which are quite workable.
- You can combine ideas and connect weaker ones with stronger ones.
- Although no idea can be seen to be too extreme for suggesting during brainstorming, this might suggest a very disorganised format, and that would be inaccurate.

When properly done, brainstorming has its own set of rules and structure. It also helps to have a skilled facilitator who is both organized and diplomatic.

RULES:

- Set clear parameters: define the situation and problem as clearly and simply as possible.
- Remember, all ideas matter. No criticism is allowed at this stage. That comes later in the problem-solving process. You want to encourage and celebrate diversity.
- Welcome cross-fertilization . It is helpful to innovatively combine ideas to synergize them.
- Do not worry about repetition.
- Do not get sidetracked into stopping to discuss; keep on generating more.
- Record all ideas.
- Support "out of the box" thinking.
- Make sure you are not overlooking the right-under-your-nose obvious solutions.
- Encourage merging ideas from different, apparently unrelated fields.
- Clarify and challenge all your assumptions.
- SWOT: identify all the Strengths, Weaknesses, Opportunities, and Threats.
- Change the size of the goal; make it smaller, or bigger. How would you respond in each scenario?
- Look at your resources. If there were no issues related to time, people, money, and/or supplies, how would this change things? What would you then feel free to do?

BRAINSTORMING STEPS

Here are the steps involved in the brainstorming process:

1. Clarify the objective or topic, keeping it as simple as possible.
2. Define a specific time limit and have as many suggestions and ideas emerge during that time as possible. Do not stop to chat about any of them; you are after quantity here.
3. Condense, combine, refine, and/or categorize all the ideas. You can use paper or colored markers on a dry erase board.
4. Analyze all the consequences or effects of each idea. Here is where you look at each with a discerning eye.
5. Agree on and prioritize your options.
6. Agree on the actions to take forward and set due dates for each.
7. Decide on follow up actions.

SOME ADDITIONAL BRAINSTORMING STRATEGIES

Group Passing Technique – seat everyone in a circle. Each person writes their idea on paper, which is then passed clockwise to next person. The next person then adds onto the idea. Continue brainstorming until all the papers have moved around the circle until they are all back with their original innovator. Then, vote on all the ideas.

Team Idea-Mapping Technique – here the focus is on the power of collaboration. Everyone is given a topic, for each person to develop as many ideas as possible. All ideas are then put on a group idea map (ensuring no ideas are left out).

Nominal Group Technique – this idea comes from Delbecq and Vandeven. Divide everyone in the large group into smaller groups. Each group writes ideas anonymously, to be collected by the facilitator; the ideas can later be voted on.

The process of brainstorming can be used to facilitate increasing the flow of creative problem-solving ideas within many contexts, both at work and at home in your relationships. It is just one of those life-skills which everyone can benefit from, in responding creatively with processes which help breakthrough the challenges that life puts before all of us!

PRODUCTIVE THINKING MODEL

The Positive Thinking model was first developed by creativity theorist and author Tim Hurson and published in his book, *Think Better*, in 2007. Individuals and groups can use this model.

Each of the six steps outlined in this model specifically focuses on bringing both critical thinking and creativity to every stage of the problem-solving process. It is this combination of creativity and critical thinking all along the process that results in better ideas and more effective solutions when using this model.

Some of the other problem-solving tools we have looked at, such as brainstorming and lateral thinking, can also be incorporated into this model.

Here are the six steps found in the Productive Thinking model:

Step 1: Ask the question, "What is going on?"

This first question invites you to explore your understanding of the challenge you are facing. There are several questions you can ask to assist in clarifying this. The idea here is to explore the topic creatively within as broad a perspective as possible.

Example questions: What seems to be out of balance? What could be improved to work more effectively? What bugs your customers, or your employees/you? What is creating your need to act?

List as many possibilities as you can, and then link as items together where possible into groups. Prioritize the groups according to which is most important. Look at how this solution may impact (both positively and negatively, and both directly and indirectly) on all stakeholders involved. Try and look at this from as many perspectives as possible.

Gather all the information possible. This means digging into the underlying causes; you can use root cause analysis or cause and effect analysis to clarify. It is important to ensure you solve these underlying issues in addressing your problem.

Lastly, you will want to clarify what Hurson calls your "Target Future," or the vision for your future after this problem has been solved.

Step 2: Ask the question, "What is success?"

This next step looks more deeply at that "Target Future" you identified in the first step, by looking at how you identify success. What are the markers you will be looking for?

You will want to consider what you want your solution to do and not do, and you will need to look at the resources needed (including both financially, and in terms of time). It is best when your solution fits into your underlying values, so you will want to have a look at that too.

Step 3: Ask the question, "What is the question?"

Based on all the information you have acquired in steps one and two, your next step is to brainstorm around what is needed to achieve that Target Future goal. It is helpful to begin with phrases such as "How will we…?" and "How can I…?" to avoid falling into negative thinking.

Once you have generated a good-sized list, focus on the most relevant questions.

Step 4: Generate answers

Now that you have a list of questions, it is time to begin looking for the answers. Brainstorming is a great tool to use. Remember, no judging or criticizing of brainstorming ideas allowed at this point.

Step 5: Forge your solution

With all the information you have discovered, compare all your best ideas, against your Step two criteria for success. Choose the one that most closely matches your criteria.

With this done, spend time further developing your new strategy/plan/idea. How else can you make this even more successful? What are the ways you can make it even stronger as a solution? Creatively refining your solution can take time and effort, but it is well worth it.

Step 6: Align your resources

Identify all the resources and people who are needed to move your new plan into implementation.

When you are not sure which direction to follow and are wanting to figure out a plan that is both creative as well as having a basis in critical thinking in every step of its development, the Productive Thinking model promises both!

CONCLUSIONS

Having a positive attitude towards the problems that arise for you in day-to-day living can help you feel more creative, competent, and relaxed.

It can also help your self-esteem improve and assist you in feeling you have more control in life, not in what happens but in having the skills to deal effectively with what happens, even when it's unexpected.

EFFECTIVE DECISION MAKING

People often say that they find it hard to make decisions.

We all must make decisions all the time, ranging from trivial issues like what to have for lunch, right up to life-changing decisions like where and what to study, and who to marry.

Some people put off making decisions by endlessly searching for more information or getting other people to offer their recommendations.

Others resort to decision-making by taking a vote, sticking a pin in a list, or tossing a coin.

WHAT IS DECISION MAKING?

In its simplest sense, decision-making is the act of choosing between two or more courses of action.

In the wider process of problem solving, decision-making involves choosing between possible solutions to a problem. Decisions can be made through either an intuitive or reasoned process, or a combination of the two.

INTUITION

Intuition is using your 'gut feeling' about possible courses of action.

Although people talk about it as if it were a magical 'sense', intuition is a combination of experience and your personal values. It is worth taking your intuition into account because it reflects your learning about life. It is, however, not always based on reality, only your perceptions, many of which may have started in childhood and may not be very mature as a result.

It is therefore worth examining your gut feeling closely, especially if you have a very strong feeling against a course of action, to see if you can work out *why*, and whether the feeling is justified.

REASONING

Reasoning is using the facts in front of you to make decisions.

Reasoning has its roots in the here-and-now, and in facts. It can ignore emotional aspects to the decision, and issues from the past that may affect the way that the decision is implemented.

Intuition is a perfectly acceptable means of deciding, although it is generally more appropriate when the decision is of a simple nature or needs to be made quickly.

More complicated decisions tend to require a more formal, structured approach, usually involving both intuition and reasoning. It is important to be wary of impulsive reactions to a situation.

APPLYING BOTH REASON AND INTUITION

One way to do this is to apply the two aspects in turn. It is useful to start with reason and gather data. Once you have an obvious 'decision', it is the turn of intuition. How do you feel about the 'answer'? Does it feel right?

If not, have another look, and see if you can work out why not. If you are not emotionally committed to the decision you have made, you will not implement it well or effectively.

EFFECTIVE DECISION-MAKING

Decisions need to be capable of being implemented, whether on a personal or organisational level. You do need to be committed to the decision personally and be able to persuade others of its merits.

An effective decision-making process, therefore, needs to ensure that you can do so.

WHAT CAN PREVENT EFFECTIVE DECISION-MAKING?

There are several problems that can prevent effective decision-making. These include:

NOT ENOUGH INFORMATION

If you do not have enough information, it can feel like you are deciding without any basis.

Take some time to gather the necessary data to inform your decision, even if the timescale is very tight. If necessary, prioritise your information-gathering by identifying which information will be most important to you.

TOO MUCH INFORMATION

The opposite problem, but one that is seen surprisingly often: having so much conflicting information that it is impossible to see 'the wood for the trees'.

This is sometimes called *analysis paralysis* and is also used as a tactic to delay organisational decision-making, with those involved demanding ever more information before they can decide.

This problem can often be resolved by getting everyone together to decide what information is important and why, and by setting a clear timescale for decision-making, including an information-gathering stage.

TOO MANY PEOPLE

Making decisions by committee is difficult. Everyone has their own views, and their own values. And while it is important to know what these views are, and why and how they are important, it may be essential for one person to take responsibility for deciding. Sometimes, any decision is better than none.

VESTED INTERESTS

Decision-making processes often founder under the weight of vested interests. These vested interests are often not overtly expressed and may be a crucial blockage. Because they are not overtly expressed, it is hard to identify them clearly, and therefore address them, but it can sometimes be possible to do so by exploring them with someone outside the process, but in a similar position.

It can also help to explore the rational/intuitive aspects with all stakeholders, usually with an external facilitator to support the process.

EMOTIONAL ATTACHMENTS

People are often attached to the status quo. Decisions tend to involve the prospect of change, which many people find difficult.

NO EMOTIONAL ATTACHMENT

Sometimes it is difficult to decide because you just do not care one way or the other. In this case, a structured decision-making process can often help by identifying some very real pros and cons of actions, that perhaps you had not thought about before.

Many of these issues can be overcome by using a structured decision-making process. This will help to:

- Reduce more complicated decisions down to simpler steps
- See how any decisions are arrived at
- Plan decision making to meet deadlines

Many different techniques of decision making have been developed, ranging from simple rules of thumb, to extremely complex procedures. The method used depends on the nature of the decision to be made and how complex it is.

A FRAMEWORK FOR EFFECTIVE DECISION MAKING

The following seven-stage model framework can be used for making effective decisions. It is designed for use in both groups and organisations. There is no reason why you cannot use the same method, or a simplified form, for decisions at home.

The important aspect is to go through all the stages in turn, even if only to decide that they are not relevant for the current situation.

LISTING POSSIBLE SOLUTIONS/OPTIONS

To come up with a list of all the possible solutions and/or options available it is usually appropriate to use a group (or individual) problem-solving process. This process could include brainstorming or some other 'idea-generating' process.

This stage is important to the overall decision-making processes, as a decision will be made from a selection of fixed choices.

Always remember to consider the possibility of not deciding or doing nothing and be aware that both options are potential solutions in themselves.

SETTING A TIME SCALE AND DECIDING WHO IS RESPONSIBLE FOR THE DECISION

In deciding how much time to make available for the decision-making process, it helps to consider the following:

- How much time is available to spend on this decision?
- Is there a deadline for deciding and what are the consequences of missing this deadline?
- Is there an advantage in making a quick decision?
- How important is it to decide? How important is it that the decision is right?
- Will spending more time improve the quality of the decision?

Remember that sometimes a quick decision is more important than 'the right' decision, and that at other times, the reverse is true.

Responsibility for the Decision

Before deciding, you need to be clear who is going to take responsibility for it.

Remember that it is not always those making the decision who must assume responsibility for it. Is it an individual, a group or an organisation?

This is a key question because the degree to which responsibility for a decision is shared can greatly influence how much risk people are willing to take.

If the decision-making is for work, then it is helpful to consider the structure of the organisation.

- Is the individual responsible for their decisions or does the organisation hold ultimate responsibility?
- Who must carry out the course of action decided?
- Who will it affect if something goes wrong?
- Are you willing to take responsibility for a mistake?

Finally, you need to know who can make the decision. When helping a friend, colleague, or client to reach a decision, in most circumstances they will take the final decision and responsibility.

Whenever possible, and if it is not obvious, it is better to agree formally who is responsible for a decision.

This idea of responsibility also highlights the need to keep a record of how any decision was made, what information it was based on and who was involved. Enough information needs to be kept to

justify that decision in the future so that, if something does go wrong, it is possible to show that your decision was reasonable in the circumstance and given the knowledge you held at the time.

INFORMATION GATHERING

All relevant information needs to be gathered before deciding.

If there is inadequate or outdated information, then it is more likely that a wrong decision might be made. If there is a lot of irrelevant information, the decision will be difficult to make, and it will be easier to become distracted by unnecessary factors.

You therefore need up-to-date, accurate information on which to make decisions.

The amount of time spent on information-gathering must be weighed against how much you are willing to risk making the wrong decision. In a group situation, such as at work, it may be appropriate for different people to research different aspects of the information required. For example, different people might be allocated to concentrate their research on costs, facilities, availability, and so on.

WEIGHING UP THE RISKS INVOLVED

One key question is how much risk should be taken in making the decision? Generally, the amount of risk an individual is willing to take depends on:

- The seriousness of the consequences of taking the wrong decision.
- The benefits of making the right decision.
- Not only how bad the worst outcome might be, but also how likely that outcome is to happen.

It is also useful to consider what the risk of the worst possible outcome occurring might be, and to decide if the risk is acceptable. The choice can be between going 'all out for success' or taking a safe decision.

DECIDING ON VALUES

Everybody has their own unique set of values: what they believe to be important. The decisions that you make will, ultimately, be based on your values. That means that the decision that is right for you may not be right for someone else.

If the responsibility for a decision is shared, it is therefore possible that one person might not have the same values as the others.

In such cases, it is important to obtain a consensus as to which values are to be given the most weight. It is important that the values on which a decision is made are understood because they will have a strong influence on the final choice.

WEIGHING UP THE PROS AND CONS

It is possible to compare different solutions and options by considering the possible advantages and disadvantages of each.

Some organisations have a formal process that is required at this stage, including a financial assessment, so check beforehand if you are deciding at work.

One good way to do this is to use a '*balance sheet*', weighing up the pros and cons (benefits and costs) associated with that solution. Try to consider each aspect of the situation in turn and identify both good and bad.

For example, start with costs, then move onto staffing aspects, then perhaps presentational issues.

Having listed the pros and cons, it may be possible to immediately decide which option is best. It may also be useful to rate each of the pros and cons on a simple 1 to 10 scale (with 10 - most important to 1 - least important).

In scoring each of the pros and cons it helps to consider how important each item on the list is meeting the agreed values. This balance sheet approach allows this to be considered and presents it in a clear and straightforward manner.

MAKING THE DECISION

Finally, it is time to make the decision!

Your information-gathering should have provided sufficient data on which to base a decision, and you now know the advantages and disadvantages of each option. It is, as the television programme *Opportunity Knocks* had it, 'Make Your Mind Up Time'.

Warning!

You may get to this stage and have a clear 'winner' but still feel uncomfortable. If that is the case, do not be afraid to revisit the process. You may not have listed all the pros and cons, or you may have placed an unsuitable weighting on one factor.

Your intuition or 'gut feeling' is a strong indicator of whether the decision is right for you and fits with your values.

If possible, it is best to allow time to reflect on a decision once it has been reached. It is preferable to sleep on it before announcing it to others. Once a decision is made public, it is difficult to change.

For important decisions it is worth always keeping a record of the steps you followed in the decision-making process. That way, if you are ever criticised for making a bad decision you can justify your thoughts based on the information and processes you used at the time. By keeping a record and

engaging with the decision-making process, you will be strengthening your understanding of how it works, which can make future decisions easier to manage.

HAVING MADE THE DECISION…

Finally, and perhaps most importantly, once you have decided, don't waste your time thinking about 'what ifs'. If something does go wrong, and you need to revisit the decision, then do. But otherwise, accept the decision and move on.

CONCLUSION

This module has set out one decision-making technique that you may like to use. Remember, though, that no technique can substitute for good judgement and clear thinking. All decision-making involves individual judgement, and systematic techniques are merely there to assist those judgements.