

**Business and Information Technology**

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| BSBCRT404 Apply advanced critical thinking to work processes |

**Learning Materials**

**Activities in this book are not assessable**



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**Identify key characteristics of concepts in a critical thinking protocol or process**

## What is Critical Thinking?[[1]](#footnote-1)

Critical thinking is the ability to think clearly and rationally, understanding the logical connection between ideas.  Critical thinking has been the subject of much debate and thought since the time of early Greek philosophers such as Plato and Socrates and has continued to be a subject of discussion into the modern age, for example the ability to recognise fake news.

Critical thinking might be described as the ability to engage in reflective and independent thinking.

In essence, critical thinking requires you to use your ability to reason. It is about being an active learner rather than a passive recipient of information.

Critical thinkers rigorously question ideas and assumptions rather than accepting them at face value. They will always seek to determine whether the ideas, arguments and findings represent the entire picture and are open to finding that they do not.

Critical thinkers will identify, analyse and solve problems systematically rather than by intuition or instinct.

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| What Is Critical Thinking?[[2]](#footnote-2) **Critical thinking** is clear, reasonable, reflective thinking focused on deciding what to believe or do. It means asking probing questions like “How do we know?” or “Is this true in every case or just in this instance?” It involves being skeptical and challenging assumptions rather than simply memorizing facts or blindly accepting what you hear or read.  Imagine, for example, that you’re reading a history textbook. You wonder who wrote it and why, because you detect certain biases in the writing. You find that the author has a limited scope of research focused only on a particular group within a population. In this case, your critical thinking reveals that there are “other sides to the story.”  Who are critical thinkers, and what characteristics do they have in common? Critical thinkers are usually curious and reflective people. They like to explore and probe new areas and seek knowledge, clarification, and new solutions. They ask pertinent questions, evaluate statements and arguments, and they distinguish between facts and opinion. They are also willing to examine their own beliefs, possessing a manner of humility that allows them to admit lack of knowledge or understanding when needed. They are open to changing their mind. Perhaps most of all, they actively enjoy learning, and seeking new knowledge is a lifelong pursuit. This may well be you!  No matter where you are on the road to being a critical thinker, you can always more fully develop and finely tune your skills. Doing so will help you develop more balanced arguments, express yourself clearly, read critically, and glean important information efficiently. Critical thinking skills will help you in any profession or any circumstance of life, from science to art to business to teaching. With critical thinking, you become a clearer thinker and problem solver.   |  |  | | --- | --- | | **Critical Thinking IS** | **Critical Thinking is NOT** | | Skepticism | Memorizing | | Examining assumptions | Group thinking | | Challenging reasoning | Blind acceptance of authority | | Uncovering biases |  | |

### Someone with critical thinking skills can:

* Understand the links between ideas.
* Determine the importance and relevance of arguments and ideas.
* Recognise, build and appraise arguments.
* Identify inconsistencies and errors in reasoning.
* Approach problems in a consistent and systematic way.
* Reflect on the justification of their own assumptions, beliefs and values.

**Critical thinking** is thinking about things in certain ways so as to arrive at the best possible solution in the circumstances that the thinker is aware of. In more everyday language, it is a way of thinking about whatever is presently occupying your mind so that you come to the best possible conclusion.

Critical Thinking is:

A way of thinking about particular things at a particular time; it is not the accumulation of facts and knowledge or something that you can learn once and then use in that form forever, such as the nine times table you learn and use in school.

## The Skills We Need for Critical Thinking

The skills that we need in order to be able to think critically are varied and include observation, analysis, interpretation, reflection, evaluation, inference, explanation, problem solving, and decision making.

Specifically we need to be able to:

* Think about a topic or issue in an objective and critical way.
* Identify the different arguments there are in relation to a particular issue.
* Evaluate a point of view to determine how strong or valid it is.
* Recognise any weaknesses or negative points that there are in the evidence or argument.
* Notice what implications there might be behind a statement or argument.
* Provide structured reasoning and support for an argument that we wish to make.

## The Critical Thinking Process

You should be aware that none of us think critically all the time.

Sometimes we think in almost any way but critically, for example when our self-control is affected by anger, grief or joy or when we are feeling just plain ‘bloody minded’.

On the other hand, the good news is that, since our critical thinking ability varies according to our current mindset, most of the time we can learn to improve our critical thinking ability by developing certain routine activities and applying them to all problems that present themselves.

Once you understand the theory of critical thinking, improving your critical thinking skills takes persistence and practice.

Try this simple exercise to help you to start thinking critically.

Think of something that someone has recently told you. Then ask yourself the following questions:

**Who said it?**

Someone you know? Someone in a position of authority or power? Does it matter who told you this?

**What did they say?**

Did they give facts or opinions? Did they provide all the facts? Did they leave anything out?

**Where did they say it?**

Was it in public or in private? Did other people have a chance to respond an provide an alternative account?

**When did they say it?**

Was it before, during or after an important event? Is timing important?

**Why did they say it?**

Did they explain the reasoning behind their opinion? Were they trying to make someone look good or bad?

**How did they say it?**

Were they happy or sad, angry or indifferent? Did they write it or say it? Could you understand what was said?

### What are you Aiming to Achieve?

One of the most important aspects of critical thinking is to decide what you are aiming to achieve and then make a decision based on a range of possibilities.

Once you have clarified that aim for yourself you should use it as the starting point in all future situations requiring thought and, possibly, further decision making. Where needed, make your workmates, family or those around you aware of your intention to pursue this goal. You must then discipline yourself to keep on track until changing circumstances mean you have to revisit the start of the decision making process.

**However, there are things that get in the way of simple decision making.** We all carry with us a range of likes and dislikes, learnt behaviours and personal preferences developed throughout our lives; they are the hallmarks of being human. A major contribution to ensuring we think critically is to be aware of these personal characteristics, preferences and biases and make allowance for them when considering possible next steps, whether they are at the pre-action consideration stage or as part of a rethink caused by unexpected or unforeseen impediments to continued progress.

The more clearly we are aware of ourselves, our strengths and weaknesses, the more likely our critical thinking will be productive.

### The Benefit of Foresight

Perhaps the most important element of thinking critically is foresight.

Almost all decisions we make and implement don’t prove disastrous if we find reasons to abandon them. However, our decision making will be infinitely better and more likely to lead to success if, when we reach a tentative conclusion, we pause and consider the impact on the people and activities around us.

The elements needing consideration are generally numerous and varied. In many cases, consideration of one element from a different perspective will reveal potential dangers in pursuing our decision.

For instance, moving a business activity to a new location may improve potential output considerably but it may also lead to the loss of skilled workers if the distance moved is too great. Which of these is the more important consideration? Is there some way of lessening the conflict?

These are the sort of problems that may arise from incomplete critical thinking, a demonstration perhaps of the critical importance of good critical thinking.

## Critical Thinking and Logic

Critical thinking is fundamentally a process of questioning information and data. You may question the information you read in a textbook, or you may question what a politician or a professor or a classmate says. You can also question a commonly-held belief or a new idea. With critical thinking, anything and everything is subject to question and examination for the purpose of logically constructing reasoned perspectives.

### What Is Logic?

The word logic comes from the Ancient Greek logike, referring to the science or art of reasoning. Using logic, a person evaluates arguments and reasoning and strives to distinguish between good and bad reasoning, or between truth and falsehood. Using logic, you can evaluate the ideas and claims of others, make good decisions, and form sound beliefs about the world.[[1]](https://courses.lumenlearning.com/austincc-learningframeworks/chapter/chapter-7-critical-thinking-and-evaluating-information/#footnote-480-1)

### Questions of Logic in Critical Thinking

Let’s use a simple example of applying logic to a critical-thinking situation. In this hypothetical scenario, a man has a PhD in political science, and he works as a professor at a local college. His wife works at the college, too. They have three young children in the local school system, and their family is well known in the community. The man is now running for political office. Are his credentials and experience sufficient for entering public office? Will he be effective in the political office? Some voters might believe that his personal life and current job, on the surface, suggest he will do well in the position, and they will vote for him. In truth, the characteristics described don’t guarantee that the man will do a good job. The information is somewhat irrelevant. What else might you want to know? How about whether the man had already held a political office and done a good job? In this case, we want to think critically about how much information is adequate in order to make a decision based on logic instead of assumptions.

The following questions, presented in Figure 1, below, are ones you may apply to formulating a logical, reasoned perspective in the above scenario or any other situation:

1. What’s happening? Gather the basic information and begin to think of questions.
2. Why is it important? Ask yourself why it’s significant and whether or not you agree.
3. What don’t I see? Is there anything important missing?
4. How do I know? Ask yourself where the information came from and how it was constructed.
5. Who is saying it? What’s the position of the speaker and what is influencing them?
6. What else? What if? What other ideas exist and are there other possibilities?

| **Activity 1** |  |
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| **Think about someone you’ve worked or studied with that you consider to be a critical thinker (colleague, boss, friend, lecturer etc). In what ways did he/she demonstrate critical thinking?** | |
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## Top Critical Thinking Skills[[3]](#footnote-3)

## Analysis

Part of critical thinking is the ability to carefully examine something, whether it is a problem, a set of data, or a text. People with analytical skills can examine information, understand what it means, and properly explain to others the implications of that information.

* Asking Thoughtful Questions
* Data Analysis
* Research
* Interpretation
* Judgment
* Questioning Evidence
* Recognizing Patterns
* Skepticism

## Communication

Often, you will need to share your conclusions with your employers or with a group of colleagues. You need to be able to communicate with others to share your ideas effectively. You might also need to engage critical thinking in a group. In this case, you will need to work with others and communicate effectively to figure out solutions to complex problems.

* Active Listening
* Assessment
* Collaboration
* Explanation
* Interpersonal
* Presentation
* Teamwork
* Verbal Communication
* Written Communication

## Creativity

Critical thinking often involves creativity and innovation. You might need to spot patterns in the information you are looking at or come up with a solution that no one else has thought of before. All of this involves a creative eye that can take a different approach from all other approaches.

* Flexibility
* Conceptualization
* Curiosity
* Imagination
* Drawing Connections
* Inferring
* Predicting
* Synthesizing
* Vision

## Open-Mindedness

To think critically, you need to be able to put aside any assumptions or judgments and merely analyze the information you receive. You need to be objective, evaluating ideas without bias.

* Diversity
* Fairness
* Humility
* Inclusive
* Objectivity
* Observation
* Reflection

## Problem Solving

Problem solving is another critical thinking skill that involves analyzing a problem, generating and implementing a solution, and assessing the success of the plan. Employers don’t simply want employees who can think about information critically. They also need to be able to come up with practical solutions.

* Attention to Detail
* Clarification
* Decision Making
* Evaluation
* Groundedness
* Identifying Patterns
* Innovation

## More Critical Thinking Skills

* Inductive Reasoning
* Deductive Reasoning
* Compliance
* Noticing Outliers
* Adaptability
* Emotional Intelligence
* Brainstorming
* Optimization
* Restructuring
* Integration
* Strategic Planning
* Project Management
* Ongoing Improvement
* Causal Relationships
* Case Analysis
* Diagnostics
* SWOT Analysis
* Business Intelligence
* Quantitative Data Management
* Qualitative Data Management
* Metrics
* Accuracy
* Risk Management
* Statistics
* Scientific Method
* Consumer Behaviour

Critical thinking is the ability to make informed decisions by evaluating several different sources of information objectively. As such, critical thinkers possess many other essential skills, including analysis, creativity, problem-solving and empathy[[4]](#footnote-4).

Employers have always found critical thinking extremely valuable – after all, no boss wants to constantly handhold their employees because they are unable to make their own judgements about how best to proceed.

However, all too often people talk about critical thinking in theory, while never really explaining what that knowledge looks like in practice. As a result, many have never really understood the importance of thinking critically in business. Which is why we’ve created this list of examples of how critical thinking skills are used in the workplace.

### Critical thinking example 1: Problem-solving

Imagine you’re at work. Someone, potentially your manager, presents you with a problem. You immediately go off and start looking for solutions. But do you take a step back first to analyse the situation, gathering and reviewing as much information as possible? Do you ask each of the different people involved what their opinion is, or how the problem affects their and the broader business’ day-to-day? And do you decide to run with the first solution you find, or take the time to come up with a number of different options and test each before making your final judgement?

While a lot of people may think they have problem-solving skills, if you aren’t taking the time to follow the above steps, you’re not really being a critical thinker. As such, you may not find the best solution to your problem.

Employing critical thinking skills when solving a problem is absolutely essential – what you decide could impact hundreds of people and even have an effect on the financial health of the business. If you’re not looking at it from multiple perspectives, you’re never going to be able to understand the full impact of a decision.

### Critical thinking example 2: Risk assessment

Economic uncertainty, climate change, political upheaval … risks abound in the modern workforce, and it’s an employee’s critical thinking skills that will enable a business to assess these hazards and act on them.

Risk assessment occurs in a number of different scenarios. For example, a construction company has to identify all potential hazards on a building site to ensure its employees are working as safely as possible. Without this analysis, there could be injuries or even deaths, causing severe distress to the workforce and negatively impacting the company’s reputation (not to mention any of the legal consequences).

In the finance industry, organisations have to assess the potential impacts of new legislation on the way they work, as well as how the new law will affect their clients. This requires critical thinking skills such as analysis, creativity (imagining different scenarios arising from the legislation) and problem-solving (finding a way to work with the new legislation). If the financial institution in this example doesn’t utilise these critical thinking skills, it could end up losing profit or even suffering legal consequences from non-compliance.

In construction, your employees’ ability to analyse risks is essential to creating a safe workplace.

### Critical thinking example 3: Data analysis

In the digital age critical thinking has become even more, well, critical. While machines have the ability to collate huge amounts of information and reproduce it in a readable format, the ability to analyse and act on this data is still a skill only humans possess.

Take an accountant. Many of their more mundane tasks have passed to technology. Accounting platforms have the ability to produce profit and loss statements, prepare accounts, issue invoices and create balance sheets. But that doesn’t mean accountants are out of a job. Instead, they can now focus their efforts on adding real value to their clients by interpreting the data this technology has collated and using it to give recommendations on how to improve. On a wider scale, they can look at historic financial trends and use this data to forecast potential risks or stumbling blocks moving forward.

The core skill in all of these activities is critical thinking – being able to analyse a large amount of information and draw conclusions in order to make better decisions for the future. Without these critical thinkers, an organisation may easily fall behind its competitors, who are able to respond to risks more easily and provide more value to clients.

Organisations are increasingly seeking employees who have the ability to analyse huge amounts of data.

### Critical thinking example 4: Talent hiring

One of the most important aspects of the critical thinking process is being able to look at a situation objectively. This also happens to be crucial when making a new hire. Not only do you have to analyse a large number of CVs and cover letters in order to select the best candidates from a pool, you also need to be able to do this objectively. This means not giving preferential treatment to someone because of their age, gender, origin or any other factor. Given that bias is often unconscious, if you can demonstrate that you are able to make decisions like this with as little subjectivity as possible, you can show that you possess objectivity – a key critical thinking skill.

Hiring the right talent is essential for a company’s survival. You don’t want to lose out on top candidates because of someone’s unconscious bias, showing just how essential this type of knowledge is in business.

**Explore situations in which critical thinking concepts may be applied in the workplace**

## Why Is Critical Thinking Important in the Workplace?[[5]](#footnote-5)

The short answer to the above question is this: critical thinkers make the best decisions, most often. And in the workplace, where choices about how to complete tasks, communicate information, relate with co-workers, and develop strategy are so common, critical thinkers are extremely valuable.

A savvy hiring manager will make this part of the recruitment process. It’s pretty easy to gauge how someone is inclined to solve a problem — ask them how they would deal with a specific situation, and give them the opportunity to use their critical thinking skills, versus deferring to an emotional, or prescribed reaction. Employing people who can think and act reasonably will pay enormous dividends down the road.

Using your critical thinking skills in the workplace will define you as a problem solver. This is not only useful career-wise (although having upper-level people at your company think highly of you is undoubtedly a benefit) it also establishes you as a leader among your fellow team members. Demonstrating your ability to solve problems and accomplish goals effectively will help instil confidence in you with all your co-workers.

## Examples of Critical Thinking[[6]](#footnote-6)

The circumstances that demand critical thinking vary from industry to industry. Some examples include:

* A triage nurse analyzes the cases at hand and decides the order by which the patients should be treated.
* A plumber evaluates the materials that would best suit a particular job.
* An attorney reviews evidence and devises a strategy to win a case or to decide whether to settle out of court.
* A manager analyzes customer feedback forms and uses this information to develop a customer service training session for employees.

| **Activity 2** |  |
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| **Think of some examples of critical thinking relevant to your studies (e.g. used in group projects)** | |
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## Problem-Solving with Critical Thinking

For most people, a typical day is filled with critical thinking and problem-solving challenges. In fact, critical thinking and problem-solving go hand-in-hand. They both refer to using knowledge, facts, and data to solve problems effectively. But with problem-solving, you are specifically identifying, selecting, and defending your solution. Below are some examples of using critical thinking to problem-solve:

* Your roommate was upset and said some unkind words to you, which put a crimp in the relationship. You try to see through the angry behaviours to determine how you might best support the roommate and help bring the relationship back to a comfortable spot.
* Your campus club has been languishing due to lack of participation and funds. The new club president, though, is a marketing major and has identified some strategies to interest students in joining and supporting the club. Implementation is forthcoming.
* Your final art class project challenges you to conceptualize form in new ways. On the last day of class when students present their projects, you describe the techniques you used to fulfill the assignment. You explain why and how you selected that approach.
* Your math teacher sees that the class is not quite grasping a concept. She uses clever questioning to dispel anxiety and guide you to new understanding of the concept.
* You have a job interview for a position that you feel you are only partially qualified for, although you really want the job and you are excited about the prospects. You analyze how you will explain your skills and experiences in a way to show that you are a good match for the prospective employer.
* You are doing well in college, and most of your college and living expenses are covered. But there are some gaps between what you want and what you feel you can afford. You analyze your income, savings, and budget to better calculate what you will need to stay in college and maintain your desired level of spending.

### Problem-Solving Action Checklist

Problem-solving can be an efficient and rewarding process, especially if you are organized and mindful of critical steps and strategies. Remember to assume the attributes of a good critical thinker: if you are curious, reflective, knowledge-seeking, open to change, probing, organized, and ethical, your challenge or problem will be less of a hurdle, and you’ll be in a good position to find intelligent solutions. The steps outlined in this checklist will help you adhere to these qualities in your approach to any problem:

|  | **STRATEGIES** | **ACTION CHECKLIST**[**[2]**](https://courses.lumenlearning.com/austincc-learningframeworks/chapter/chapter-7-critical-thinking-and-evaluating-information/#footnote-480-2) |
| --- | --- | --- |
| 1 | Define the problem | * Identify the problem * Provide as many supporting details as possible * Provide examples * Organize the information logically |
| 2 | Identify available solutions | * Use logic to identify your most important goals * Identify implications and consequences * Identify facts * Compare and contrast possible solutions |
| 3 | Select your solution | * Use gathered facts and relevant evidence * Support and defend solutions considered valid * Defend your solution |

### Critical and Creative Thinking

Critical and creative thinking complement each other when it comes to problem-solving. The following words, by Dr. Andrew Robert Baker, are excerpted from his “Thinking Critically and Creatively” essay. Dr. Baker illuminates some of the many ways that college students will be exposed to critical and creative thinking and how it can enrich their learning experiences.

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| --- |
| THINKING CRITICALLY AND CREATIVELY Critical thinking skills are perhaps the most fundamental skills involved in making judgments and solving problems. You use them every day, and you can continue improving them.  The ability to think critically about a matter—to analyze a question, situation, or problem down to its most basic parts—is what helps us evaluate the accuracy and truthfulness of statements, claims, and information we read and hear. It is the sharp knife that, when honed, separates fact from fiction, honesty from lies, and the accurate from the misleading. We all use this skill to one degree or another almost every day. For example, we use critical thinking every day as we consider the latest consumer products and why one particular product is the best among its peers. Is it a quality product because a celebrity endorses it? Because a lot of other people may have used it? Because it is made by one company versus another? Or perhaps because it is made in one country or another? These are questions representative of critical thinking.  The academic setting demands more of us in terms of critical thinking than everyday life. It demands that we evaluate information and analyze myriad issues. It is the environment where our critical thinking skills can be the difference between success and failure. In this environment we must consider information in an analytical, critical manner. We must ask questions—What is the source of this information? Is this source an expert one and what makes it so? Are there multiple perspectives to consider on an issue? Do multiple sources agree or disagree on an issue? Does quality research substantiate information or opinion? Do I have any personal biases that may affect my consideration of this information?  It is only through purposeful, frequent, intentional questioning such as this that we can sharpen our critical thinking skills and improve as students, learners and researchers.  While critical thinking analyzes information and roots out the true nature and facets of problems, it is creative thinking that drives progress forward when it comes to solving these problems. Exceptional creative thinkers are people that invent new solutions to existing problems that do not rely on past or current solutions. They are the ones who invent solution C when everyone else is still arguing between A and B. Creative thinking skills involve using strategies to clear the mind so that our thoughts and ideas can transcend the current limitations of a problem and allow us to see beyond barriers that prevent new solutions from being found.  Brainstorming is the simplest example of intentional creative thinking that most people have tried at least once. With the quick generation of many ideas at once, we can block-out our brain’s natural tendency to limit our solution-generating abilities so we can access and combine many possible solutions/thoughts and invent new ones. It is sort of like sprinting through a race’s finish line only to find there is new track on the other side and we can keep going, if we choose. As with critical thinking, higher education both demands creative thinking from us and is the perfect place to practice and develop the skill. Everything from word problems in a math class, to opinion or persuasive speeches and papers, call upon our creative thinking skills to generate new solutions and perspectives in response to our professor’s demands. Creative thinking skills ask questions such as—What if? Why not? What else is out there? Can I combine perspectives/solutions? What is something no one else has brought-up? What is being forgotten/ignored? What about \_\_\_\_\_\_? It is the opening of doors and options that follows problem-identification.  Consider an assignment that required you to compare two different authors on the topic of education and select and defend one as better. Now add to this scenario that your professor clearly prefers one author over the other. While critical thinking can get you as far as identifying the similarities and differences between these authors and evaluating their merits, it is creative thinking that you must use if you wish to challenge your professor’s opinion and invent new perspectives on the authors that have not previously been considered.  So, what can we do to develop our critical and creative thinking skills? Although many students may dislike it, group work is an excellent way to develop our thinking skills. Many times I have heard from students their disdain for working in groups based on scheduling, varied levels of commitment to the group or project, and personality conflicts too, of course. True—it’s not always easy, but that is why it is so effective. When we work collaboratively on a project or problem we bring many brains to bear on a subject. These different brains will naturally develop varied ways of solving or explaining problems and examining information. To the observant individual we see that this places us in a constant state of back and forth critical/creative thinking modes.  For example, in group work we are simultaneously analyzing information and generating solutions on our own, while challenging other’s analyses/ideas and responding to challenges to our own analyses/ideas. This is part of why students tend to avoid group work—it challenges us as thinkers and forces us to analyze others while defending ourselves, which is not something we are used to or comfortable with as most of our educational experiences involve solo work. Your professors know this—that’s why we assign it—to help you grow as students, learners, and thinkers!  —Dr. Andrew Robert Baker, Foundations of Academic Success: Words of Wisdom |

## Evaluating Information with Critical Thinking

Evaluating information can be one of the most complex tasks you will be faced with in college. But if you utilize the following four strategies, you will be well on your way to success:

1. Read for understanding
2. Examine arguments
3. Clarify thinking
4. Cultivate “habits of mind”

### Read for Understanding

When you read, take notes or mark the text to track your thinking about what you are reading. As you make connections and ask questions in response to what you read,  you monitor your comprehension and enhance your long-term understanding of the material. You will want to mark important arguments and key facts. Indicate where you agree and disagree or have further questions. You don’t necessarily need to read every word, but make sure you understand the concepts or the intentions behind what is written.

### Examine Arguments

When you examine arguments or claims that an author, speaker, or other source is making, your goal is to identify and examine the hard facts. You can use the spectrum of authority strategy for this purpose. The spectrum of authority strategy assists you in identifying the “hot” end of an argument—feelings, beliefs, cultural influences, and societal influences—and the “cold” end of an argument—scientific influences. The most compelling arguments balance elements from both ends of the spectrum.

### Clarify Thinking

When you use critical thinking to evaluate information, you need to clarify your thinking to yourself and likely to others. Doing this well is mainly a process of asking and answering probing questions, such as the logic questions discussed earlier. Design your questions to fit your needs, but be sure to cover adequate ground. What is the purpose? What question are we trying to answer? What point of view is being expressed? What assumptions are we or others making? What are the facts and data we know, and how do we know them? What are the concepts we’re working with? What are the conclusions, and do they make sense? What are the implications?

### Cultivate “Habits of Mind”

“Habits of mind” are the personal commitments, values, and standards you have about the principle of good thinking. Consider your intellectual commitments, values, and standards. Do you approach problems with an open mind, a respect for truth, and an inquiring attitude? Some good habits to have when thinking critically are being receptive to having your opinions changed, having respect for others, being independent and not accepting something is true until you’ve had the time to examine the available evidence, being fair-minded, having respect for a reason, having an inquiring mind, not making assumptions, and always, especially, questioning your own conclusions—in other words, developing an intellectual work ethic. Try to work these qualities into your daily life.

**Workplace Roles[[7]](#footnote-7)**

Employers value workers who know how to think critically. Critical thinkers bring creative solutions to the table and help businesses to innovate and remain competitive.

Critical thinking examples exist in every part of the workplace, from the corporate executive offices to the sales floor. Whether you’re the boss or an intern, knowing how to think critically gives you the power to make positive contributions to the company.

Here are some critical thinking examples in different job positions.

***Manager***

As team leaders, managers are role models for their direct reports. How managers analyze problems influences how their team members will handle issues going forward. Managers that use critical thinking processes foster teams that are intentional about assessing problems and devising solutions.

***Business Analyst***

A business analyst’s job is to evaluate data and make informed decisions regarding a company’s performance. Careful critical thinking can uncover innovative solutions to address issues that come up and to boost business growth in the future.

***Human Resources Specialist***

Workers in the human resources department are responsible for hiring new talent, determining which employees get pay raises, and deciding appropriate consequences for workers who have violated company policy. Each of those situations requires deliberate critical thinking on the part of human resources specialists, who make decisions that can impact a colleague’s career.

***Accountant***

Critical thinking is part of the core competencies for accountants. Though there are guidelines and principles for accountants to follow, like the Generally Accepted Accounting Principles (GAAP), accountants must use their critical thinking skills to interpret reported numbers and financial statements, identify trends, and exercise good judgment to solve problems.

***Marketing Associate***

Well-developed critical thinking skills are vital to the marketing team’s ability to create and manage successful marketing campaigns. Marketing associates must be able to gather and analyze demographic information about an organization’s target audience to know how to reach customers effectively when promoting the brand.

***Lawyer***

Lawyers must think critically to make nuanced distinctions, spot ambiguities, and argue persuasively. “Thinking like a lawyer”, to think with care and precision, is the fundamental skill taught in law school.

***Sales Agent and Customer Service Representative***

Customer service reps and sales agents have the most direct contact with clients. The ability to think critically enables both groups of workers to satisfy customers’ needs. For instance, if a disgruntled customer storms into a store to complain about a faulty product, a critically thinking customer service associate can get to the root of the problem and suggest possible solutions to the client, who can then choose the best option and leave on a positive note.

| **Activity 3** |  |
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| **How could a team leader or supervisor use critical thinking in the workplace?** | |
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**Reflect on benefits of adopting a critical thinking mindset and risks associated with failing to do so**

## Benefits of Critical Thinking[[8]](#footnote-8)

An employee's ability to think critically doesn't benefit only the employer; it benefits the employee as well. Critical thinking is a lifetime skill that an individual can use in every area of life, including interpersonal relationships, financial planning, personal goal-setting and career decisions.

For employers, the benefits of employees' critical thinking include:

* Finding multiple solutions to problems
* Effective communication between teams and individual employees
* Developing unique perspectives on situations and challenges at work

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| **Critical Thinking** is the ability to analyze the way you think and present evidence for your ideas, rather than simply accepting your personal reasoning as sufficient proof. You can gain numerous benefits from mastering critical thinking skills, such as better control of your own learning and empathy for other points of view[[9]](#footnote-9).  **Critical Thinking** is, in short, self-directed, self-disciplined, self-monitored, and self-corrective thinking. It presupposes assent to rigorous standards of excellence and mindful command of their use. It entails effective communication and problem solving abilities and a commitment to overcome our native egocentrism and sociocentrism.  From solving problems in class assignments to facing real world situations, **Critical Thinking** is a valuable skill for students to master.  **Critical Thinking** skills teach a variety of skills that can be applied to any situation in life that calls for reflection, analysis and planning.    **Critical Thinking is a domain-general thinking skill.** The ability to think clearly and rationally is important whatever we choose to do. If you work in education, research, finance, management or the legal profession, then critical thinking is obviously important. But critical thinking skills are not restricted to a particular subject area. Being able to think well and solve problems systematically is an asset for any career.  **Critical Thinking is very important in the new knowledge economy.** The global knowledge economy is driven by information and technology. One has to be able to deal with changes quickly and effectively. The new economy places increasing demands on flexible intellectual skills, and the ability to analyse information and integrate diverse sources of knowledge in solving problems. Good critical thinking promotes such thinking skills, and is very important in the fast-changing workplace.  ***Critical Thinking*** **enhances language and presentation skills.** Thinking clearly and systematically can improve the way we express our ideas. In learning how to analyse the logical structure of texts, critical thinking also improves comprehension abilities.  **Critical Thinking promotes creativity.** To come up with a creative solution to a problem involves not just having new ideas. It must also be the case that the new ideas being generated are useful and relevant to the task at hand. Critical thinking plays a crucial role in evaluating new ideas, selecting the best ones and modifying them if necessary  **Critical Thinking is crucial for self-reflection.** In order to live a meaningful life and to structure our lives accordingly, we need to justify and reflect on our values and decisions. Critical thinking provides the tools for this process of self-evaluation.  **Good Critical Thinking is the foundation of science and a liberal democratic society.** Science requires the critical use of reason in experimentation and theory confirmation. The proper functioning of a liberal democracy requires citizens who can think critically about social issues to inform their judgments about proper governance and to overcome biases and prejudice.  **Critical Thinking** is something that is valued both in the university setting and in the professional situations you will find yourselves in after you graduate, and is part of lifelong learning. Critical Thinking is important in life. It helps you to think creatively – ‘outside the box’. It keeps you from becoming narrow. Critical Thinking is expected of you in higher education. It can lead to developing your judgement, evaluation and problem solving abilities.  Learning **Critical Thinking** skills can also enhance your academic performance. According to Linda Elder and Richard Paul, authors of "Critical Thinking Development: A Stage Theory," students who know how to analyze and critique ideas are able to make connections across disciplines, see knowledge as useful and applicable to daily life and understand content on a deeper, more lasting level.  Rather than relying on teachers and classroom time for instruction and guidance, students with critical thinking skills become more independent, self-directed learners. Researcher Jane Qinjuan Zhang writes that critical thinking enables students to assess their learning styles, strengths and weaknesses, and allows them to take ownership of their education.  All Entrance exams examine a students’ ability to think critically. As a matter of fact, the analytical and verbal reasoning skills sections of the GRE exams are straight out exams founded on testing Critical Thinking skills. So is the Written Analysis and Communication test in the second phase of IIMA entrance exams. The skills developed in Critical Thinking directly help students do better even at the Mathematical reasoning tests.  Today one of the most important criteria for success in College is the ability to think independently while being logical at the same time. Often students are asked to present papers either on their subject matter or in liberal arts. Knowledge of Critical Thinking Skills enables students to not only outline their papers coherently with a logical structure, it also helps them reason and present their thoughts in an organized and persuasive manner.  A good critical thinker knows how to separate facts from opinions, how to examine an issue from all sides, how to make rational inferences and how to withhold personal judgment or biases.  Rational critical thinkers are generally the voices of reason in times of mass hysteria or panic. As Franklin D. Roosevelt said, "We have nothing to fear but fear itself." The critical thinker usually has the comprehensive skills to consider all possible options and solve a problem.  The critical thinker remains calm and knows when he is right. Critical thinkers are less likely to fall for scams or tricks because they approach everything with a healthy amount of skepticism. Those who lack critical thinking skills often assume that everything they hear is true, regardless of the source.  Critical thinkers consider all options before they act. If time is an important factor, they consider the fastest method of achieving a goal. They may even discover a shortcut. Critical thinkers embody the phrase "work smarter, not harder." They are masters of efficiency.  A critical thinker has the self-awareness to know the difference between a rational thought based on careful consideration and an emotional response based on personal bias. Emotion is the enemy of reason. By understanding your own perspective, you can also consider the perspective of others and come to a conclusion based on fact, not feelings.  Increasingly more and more employers are looking not for employees with highly specialized academic skills, but those with good thinking and communication skills. Employees who learn quickly and can solve problems, think creatively, gather and analyze information meaningfully.  Many of the highest paying jobs require critical thinking skills, such as generating effective ideas and making important decisions. Job interviewers often ask applicants questions that test their ability to think critically. Critical thinking skills may also be a deciding factor when an employee seeks a promotion.  It's easy to let your emotions take over when making an important decision or arguing for your opinion, especially if you are personally invested in it. However, "Why Critical Thinking?", a report from York University, asserts that critical thinking can help you effectively use emotional appeal, letting your feelings influence, but not control your reasoning.  Ultimately, **Critical Thinking Skills** help you to better understand the experiences and views of others, enhancing your ability to work with different people. |

## Critical Thinking in Business Management

It's important for every member of an organization to think critically, but perhaps the most critical area for this skill lies in business management. A manager is tasked not only with ensuring each member of the team performs their tasks correctly but also with making the big decisions that can have far-reaching repercussions, both positive and negative.

Specific applications of critical thinking in business management include:

* Anticipating problems and preventing them before they arise
* Finding ways to cut expenses
* Planning and implementing business strategies
* Delegating tasks to qualified team members
* Effectively interviewing job applicants and selecting those who are the best fit for the company

Benefits of critical thinking in business management include:

* Building a well-qualified team with low turnover
* Having a solution plan for each potential challenge
* Streamlined, efficient work processes
* Effective communication between the manager and team members

## Critical Thinking in Business Examples

Critical thinking is a soft skill. According to Rider University, soft skills are the workplace skills that cannot be quantified but are nonetheless a key component of workplace success. Indeed categorizes soft skills as including creativity, empathy and open-mindedness. In contrast, hard skills include specific skills, such as knowing programming languages, knowing how to manage a database, and speaking multiple languages.

Critical thinking in business in general is similar to critical thinking in business management. The primary difference is that it deals more with operating a business than with managing teams. A few examples include:

* Predicting how much demand there will be for a product or service based on industry data and trends
* Gauging how well a new business will likely perform based on the demographics of its proposed location
* Planning efficient ways to use company budgets

## Exercises for Critical Thinking

Critical thinking is a skill that can be taught and strengthened. Like most other skills, it should be exercised regularly to ensure employees do not become complacent and they have the tools to handle modern challenges that arise at work.

Exercises for critical thinking used by companies across the U.S. and the world include:

* Working through a challenge backward
* Explaining a process as if speaking to a six-year-old
* Expressing ideas through multiple mediums

Each of these exercises for critical thinking forces the participants to approach a challenge in a way they might not have approached it before. By doing this, they are forced to look at the challenge differently and find a creative way to solve it.

| **Activity 4** |  |
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| **Describe at least one benefit of having a critical thinking mentality when faced with an unexpected problem.** | |
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**Analyse and understand key elements of workplace processes, products or services**

## The Role of Critical Thinking in Business[[10]](#footnote-10)

When applying critical thinking in business, a leader must use logic to identify, understand, analyze and solve problems. This requires patience and practice. The successful application of critical thinking often results in more efficient work processes.

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| Critical thinking and problem solving are perennially cited among the most valued skills in organizations. As digitization has replaced people throughout the modern workplace, demand for specific technical skills and occupations—indeed whole industries—rises and falls with ever increasing speed. Yet critical thinking and problem-solving capabilities remain indispensable and sought-after employee competencies, decade-after-decade. These are the high-value capabilities that span time, geography and industry[[11]](#footnote-11).  In a series of studies, researchers found that people who were strong on either intelligence or critical thinking experienced fewer negative events in life: but critical thinkers did better. While intelligence is heavily tied to genetics and is problematic to teach; critical thinking can be taught and learned. Good critical thinking is a skill that persists over time and is characterized by many of the attributes that lead to success.  Good critical thinkers are able to identify what information is significant, moving them towards greater understanding. In a world awash with data, critical thinking helps us focus on relevant information, possible connections and logical actions to take. When something goes wrong, critical thinkers pose the questions that lead to the best path forward. The Impact of Critical Thinking Skills in an Organization Without active critical thinking skills, problems go unresolved; decisions are made based on limited information; and risks and opportunities are ignored. Critical thinkers can remove uncertainty when the path ahead is unclear and establish priorities for effective action. They move from observing the effect of a problem to analyzing and understanding its cause. A foundation of critical thinking establishes the thinking patterns needed to set the best course of action and evaluate any threats or opportunities that could lie ahead.  The customer is the driving force in today’s organizations. Tech companies invest heavily in developing problem-solving skills; to improve customer service, accelerate the time to resolution and reduce service costs. A structured approach to handling problems and incidents eliminates trial and error behaviour and results in consistent high quality, accelerated root cause analysis.  Manufacturers drive out waste by using critical thinking to analyze processes and choose the best actions for maximizing value to the customer. In regulated industries like Pharmaceuticals, advanced problem solvers ensure that quality is maintained and document their solutions for the FDA with logic and relevant data.  Business environments are changing frequently, especially with the fusion of IT and technology in virtually everything we do. The increased complexity comes from interdependencies between systems and processes creating problems never occurred before. To solve a problem that was never previously confronted and determine the cause fast, a foundation of critical thinking skills helps problem solvers to separate complex problems into a set of smaller and more manageable challenges. Each can be addressed effectively, rapidly and concurrently. |

The following three examples help answer why critical thinking is important in business:

**Improve communication strategies.** Communicating with different types of people requires defining the needs of the target audience, which demands critical thinking. For example, if a company is being bought out by a competitor, the CEO must consider how this will impact everyone, from low-level employees to investors, and determine what messages to convey to each party. Acting quickly is essential, as he or she should be the first to give the employees the news to maintain their trust.

**Support smooth operations.** Maintaining daily operations in an ever-changing environment requires constant critical thinking. For example, if the power goes out at a restaurant and there is no emergency generator, the manager must decide not only what to do with the customers and staff but also whether and how to salvage refrigerated food. The quicker the manager acts, the more likely he or she is to make the best of an unfortunate situation.

**Streamline product development.** A product development role requires multiple decisions to ensure efficacy, marketability and safety. For instance, if a company is marketing a new kitchen gadget, designing it a certain way would make it look more appealing, but that design could also make it more difficult to use. Should the company prioritize function or fashion? The sooner it reaches a decision, the sooner production can begin.

In each of these examples, critical thinking directly impacts efficiency in the workplace.

## The Demand for Critical Thinking in Business

Critical thinking is considered a soft skill. Unlike hard skills, such as proficiency in a foreign language, the interpersonal skills characterized as soft are hard to quantify. Communication, leadership and teamwork are examples of soft skills; they might not be “measurable” with a test or numbers, but they are recognizable in how people interact with others. While hard skills, as evidenced in grades, certificates or demonstrable competencies (such as typing speed), are part of what recruiters look at, they’re only part of the picture.

The job market is increasingly acknowledging the importance of soft skills. In fact, according to a 2016 PayScale and Future Workplace joint report, about 60% of hiring managers believe recent graduates lack problem-solving and critical-thinking skills.

Given that critical thinking is important in business, professionals must make an effort to develop this soft skill. Critical thinking, just like problem-solving, can be an acquired skill, given the right amount of dedication to practicing and mastering it.

Real-world simulations or settings can provide the background for professionals to develop this skill. What’s more, to have an impact on business, critical thinking must be complemented by clear and confident communication (another soft skill). Even professionals with business savvy likely won’t succeed if they can’t communicate their insights to senior leaders, managers or co-workers.

## How Critical Thinking and Communication Are Linked in Business

If communication refers to the meaningful exchange of information in an organization, critical thinking is the engine that provides the meaning. The ability to identify a problem and develop a cogent explanation and solution is important for business communication.

**Assessment of various situations in a business setting.** Take, for example, the head of a marketing team managing nine people. To develop a marketing proposal for a new product, he divides his team into three groups of three. Each group pitches a concept. The head of the marketing team then selects one, justifying his choice with clear communication that rewards those whose concept was chosen without discouraging the others. This is one of the many situations that may arise in a business setting that requires using critical thinking while communicating.

**Collaboration among teams/departments.** Leaders need to manage their teams’ internal communications, as well as their interactions with other teams. For example, the aforementioned marketing team might have to work directly with the product development team to identify a product’s most notable selling points. In this case, a course focused on communication and organizational culture prepares managers to recognize that the product development department might have a very different day-to-day approach to work and collaboration.

**Teamwork.** Leaders need to be able to navigate the differences among groups of people from a variety of backgrounds. Rider’s online Master of Arts in Business Communication features coursework that focuses on the multicultural aspects of teamwork in an organization and can be a useful tool in business.

**Presentation strategies.** Critical thinking allows individuals to make business-influencing decisions and convey their conclusions with confidence. For example, an individual has to present the results of a financial quarter, and the figures show a loss. He may recognize that this is due to a major investment in a new work productivity tool, which is projected to increase turnover and result in a large profit next quarter. The program’s business presentation coursework equips professionals to make this kind of judgment.

**Verbal communication.** Leaders may have to use verbal skills to change another person’s opinion in business. For example, if they are sitting on the board, and the board votes on an important issue that results in a tie, they may want to speak up and present an argument for their side of the vote. The coursework focusing on techniques for persuasive discourse provides students with the competencies needed to change people’s opinions and behaviours.

**Written communication.** Not all business cases are made in face-to-face situations. For example, leaders can inspire their teams through a powerful email. A course in strategic business writing provides students with the tools needed to harness their writing skills to support strategy and produce desired outcomes, such as motivating employees.

| **Activity 5** |  |
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| **How can critical thinking be used to choose the best direction or strategies for a business?** | |
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#### Critical Thinking Skills in the Workplace

Critical thinking can be defined as the ability to exercise sound reasoning and analytical thinking, using knowledge, facts and data to resolve issues.

Their value in the workplace is evident in a wide range of situations:

* **Problem solving and decision making.** Rapid changes in the workplace require delegating decision making and problem solving farther and farther down the organization. This is coupled with a deluge in the data available to guide these actions. Among today's workers, the critical thinking skills for data analysis, complex problem solving, and teamwork are in high demand and short supply.
* **Problem prevention.** Identifying potential problems and planning preventive and contingent actions require good, solid analytical thinking. Within heavily regulated industries or whenever problems create a high level of risk, problem prevention is essential to doing business.
* **Good teamwork.** Teamwork is not automatic; but it is the way work gets done today. Teams must function as productive units despite potential roadblocks like geographic and time distances or varying job functions and priorities. Team members need critical thinking skills for effective communication, conflict resolution, decision making, problem solving and self-management.
* **Empowerment and flexible thinking.** For people to manage their own work and do it effectively, they benefit by using a structured thought process and valid input to figure out effective solutions. These critical thinkers look for evidence to support their thinking and are less prone to jump to the cause of a problem without evidence. By effectively analyzing problems and decisions, critical thinkers are able to find solutions and make decisions backed up by sound reasoning and analysis.

**Identify limitations in existing or proposed workplace processes, products or services by applying critical thinking protocols or processes**

## Assess and Restate the Problem[[12]](#footnote-12)

One of the central strategies to critical thinking and problem solving is developing as complete an understanding as possible of the problem. This means restating the problem in a number of different ways to learn about its dimensions, related problems, and where to look for information about the problem and possible solutions. Assessing a problem using critical thinking may reveal that it's not a problem at all, or that it's impossible to solve given present circumstances, which allows a business leader to focus on reducing its harmful effects instead of searching for a complete solution.

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| Steps to Critical Thinking As It Relates To Problem Solving[[13]](#footnote-13):  1. **Identify the Problem.** The first task is to determine if a problem exists. Sometimes when you think this point through, you may come to the conclusion that there really isn't a problem, just a misunderstanding. If that's the case, fine. If not, and you determine that there is indeed a problem, you need to identify exactly what it is. According to Barry Lubetkin, a New York clinical psychologist,  how systematically someone weighs the pros and cons of a problem and how clearly the person can define and state it, is also an indication of highly developed intelligence. 2. **Analyze the problem, look at it from different angles.** Once you've determined the problem, analyze it by looking at it from a variety of perspectives. Is it solvable? Is it real or perceived? Can you solve it alone or do you need help? Sometimes by looking at it from many angles you can come up with a resolution right away. You may also reveal a bias or narrow point of view that needs to be broadened 3. **Brainstorm and come up with a several possible solutions.** Problems can be solved in many ways. Brainstorm a list of several possible solutions. Put down anything that comes to mind and then go over the list and narrow it down to the best possibilities. Having several viable options leads to obtaining the best results. 4. **Decide which solution fits the situation best.** Go over your list of possible solutions. Different situations call for different solutions. Quite often what works in one situation, may not work in a similar one. Take time to determine what will work best for the problem at hand. One solution usually does not fit all. 5. **Take action.** Implement your solution. Every problem has a solution; even if it is to accept the situation and move on. Instead of approaching problems and challenges as insurmountable obstacles, we can view them as opportunities to hone our critical thinking and problem-solving skills. |

## Encourage Creativity

While critical thinking focuses on facts and evidence to solve problems, this doesn't mean that it excludes creative thought and imagination. Instead, critical thinking relies on problem solvers to consider diverse sets of possible solutions before making decisions and acting on them. A creative problem-solving strategy may require collaborating with others to get new input or hear ideas that you wouldn't think of alone. It may also require you to be patient while your ideas develop and evolve.

## Question Assumptions

Questioning assumptions is an important strategy to employ at each step of the critical thinking process. Just because solutions were effective in the past doesn't mean they'll be among the best possible solutions now. Use your own research instead of relying on information from unreliable sources. Use multiple data points or case studies to verify the accuracy and completeness of the information you collect. Even if questioning an assumption doesn't cause you to reject it, it may still bring you closer to a complete understanding of the best solutions by allowing you to examine the problem from another point of view.

## Follow Up

The critical-thinking process shouldn't end once you select a solution to your problem and implement it. Instead, thorough problem solving extends the critical thinking process to include a strategic follow-up that allows you to evaluate the outcome. You can compare this to your predicted consequences of implementing your solution, using the information to identify weaknesses in your critical-thinking process or search for even better solutions.

| **Activity 6** |  |
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| **How can critical thinking be used to problem solve effectively?** | |
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**Source information from a variety of different and verified sources**

## Analysing information[[14]](#footnote-14)

When you think analytically you examine, or think about, the different parts or details of something so that you can understand or explain it. It requires you to think about some (or all) of the following:

* cause and effect, the sequence of events and/or steps within a process
* similarities, differences and/or trends
* associations and relationships between things
* complex systems and how they work
* ways to solve complex problems
* examples of what is happening.

## CRAAP Test

In 2010, a textbook being used in fourth grade classrooms in Virginia became big news for all the wrong reasons. The book, Our Virginia by Joy Masoff, had caught the attention of a parent who was helping her child do her homework, according to an article in The Washington Post. Carol Sheriff was a historian for the College of William and Mary and as she worked with her daughter, she began to notice some glaring historical errors, not the least of which was a passage which described how thousands of African Americans fought for the South during the Civil War.

Further investigation into the book revealed that, although the author had written textbooks on a variety of subjects, she was not a trained historian. The research she had done to write Our Virginia, and in particular the information she included about Black Confederate soldiers, was done through the Internet and included sources created by groups like the Sons of Confederate Veterans, an organization which promotes views of history that de-emphasize the role of slavery in the Civil War.

How did a book with errors like these come to be used as part of the curriculum and who was at fault? Was it Masoff for using untrustworthy sources for her research? Was it the editors who allowed the book to be published with these errors intact? Was it the school board for approving the book without more closely reviewing its accuracy?

There are a number of issues at play in the case of Our Virginia, but there’s no question that evaluating sources is an important part of the research process and doesn’t just apply to Internet sources. Using inaccurate, irrelevant, or poorly researched sources can affect the quality of your own work. Being able to understand and apply the concepts that follow is crucial to becoming a more savvy user and creator of information.

When you begin evaluating sources, what should you consider? The **CRAAP test** is a series of common evaluative elements you can use to evaluate the **C**urrency, **R**elevance, **A**uthority, **A**ccuracy, and **P**urpose of your sources. The CRAAP test was developed by librarians at California State University at Chico and it gives you a good, overall set of elements to look for when evaluating a resource. Let’s consider what each of these evaluative elements means.

### Currency

One of the most important and interesting steps to take as you begin researching a subject is selecting the resources that will help you build your thesis and support your assertions. Certain topics require you to pay special attention to how current your resource is—because they are time sensitive, because they have evolved so much over the years, or because new research comes out on the topic so frequently. When evaluating the currency of an article, consider the following:

* When was the item written, and how frequently does the publication it is in come out?
* Is there evidence of newly added or updated information in the item?
* If the information is dated, is it still suitable for your topic?
* How frequently does information change about your topic?

### Relevance

Understanding what resources are most applicable to your subject and why they are applicable can help you focus and refine your thesis. Many topics are broad and searching for information on them produces a wide range of resources. Narrowing your topic and focusing on resources specific to your needs can help reduce the piles of information and help you focus in on what is truly important to read and reference. When determining relevance consider the following:

* Does the item contain information relevant to your argument or thesis?
* Read the article’s introduction, thesis, and conclusion.
* Scan main headings and identify article keywords.
* For book resources, start with the index or table of contents—how wide a scope does the item have? Will you use part or all of this resource?
* Does the information presented support or refute your ideas?
* If the information refutes your ideas, how will this change your argument?
* Does the material provide you with current information?
* What is the material’s intended audience?

### Authority

Understanding more about your information’s source helps you determine when, how, and where to use that information. Is your author an expert on the subject? Do they have some personal stake in the argument they are making? What is the author or information producer’s background? When determining the authority of your source, consider the following:

* What are the author’s credentials?
* What is the author’s level of education, experience, and/or occupation?
* What qualifies the author to write about this topic?
* What affiliations does the author have? Could these affiliations affect their position?
* What organization or body published the information? Is it authoritative? Does it have an explicit position or bias?

### Accuracy

Determining where information comes from, if evidence supports the information, and if the information has been reviewed or refereed can help you decide how and whether to use a source. When determining the accuracy of a source, consider the following:

* Is the source well-documented? Does it include footnotes, citations, or a bibliography?
* Is information in the source presented as fact, opinion, or propaganda? Are biases clear?
* Can you verify information from the references cited in the source?
* Is the information written clearly and free of typographical and grammatical mistakes? Does the source look to be edited before publication? A clean, well-presented paper does not always indicate accuracy, but usually at least means more eyes have been on the information.

### Purpose

Knowing why information was created is a key to evaluation. Understanding the reason or purpose of the information, if the information has clear intentions, or if the information is fact, opinion, or propaganda will help you decide how and why to use information:

* Is the author’s purpose to inform, sell, persuade, or entertain?
* Does the source have an obvious bias or prejudice?
* Is the article presented from multiple points of view?
* Does the author omit important facts or data that might disprove their argument?
* Is the author’s language informal, joking, emotional, or impassioned?
* Is the information clearly supported by evidence?

When you feel overwhelmed by the information you are finding, the CRAAP test can help you determine which information is the most useful to your research topic. How you respond to what you find out using the CRAAP test will depend on your topic. Maybe you want to use two overtly biased resources to inform an overview of typical arguments in a particular field. Perhaps your topic is historical and currency means the past hundred years rather than the past one or two years. Use the CRAAP test, be knowledgeable about your topic, and you will be on your way to evaluating information efficiently and well!

| **Activity 7** |  |
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| **What technique can be used to evaluate sources of information? Give an example of when it could be used relevant to your industry.** | |
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Using different techniques will identify what information to collect during the problem solving process. Credibility criteria can be used in determining how believable the sources are[[15]](#footnote-15).

# PESTLE analysis

Collecting information is a key part of the problem solving process. There are many techniques that can be used to help identify what information to collect. One of these techniques is called PESTLE analysis.

PESTLE is an acronym, and PESTLE analysis is a technique used to understand the impact of outside factors on a location, business or organisation.

It allows an individual or organisation to understand the ‘big picture’ of the environment they are situated in.



# PESTLE - Political



*An example of a political influence is if the government decides to change income tax rates*

The P in PESTLE stands for **political influences**.

These are decisions made by the government which will have an impact within a particular environment. This is because governments at local, national and international levels provide rules and regulations which influence the way people live.

If a government decides to increase the rate of income tax, this may mean that people will have less disposable income. Less disposable income means less money to buy goods and services from businesses.

# PESTLE - Economic

The first E in PESTLE stands for **economic influences**.

Economic influences such as inflation rates, interest rates and unemployment rates can affect an economy’s performance and this can directly impact on an individual or organisation.

* The impact of an inflation rise on an individual is that as inflation rises, every dollar you own buys a smaller percentage of a product or service. This means you get less for your money.
* The impact of an increase in interest rates on a business is that if interest rates rise, people may save more money in the bank, and so spend less on goods and services.

| **Activity 8** |  |
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| **If the interest rates increase, what is the likely impact on individuals and businesses? Do you think that is a good or a bad thing? Why?** | |
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# PESTLE - Social

The S in PESTLE stands for **social influences**.

Social influences are the cultural and demographic aspects of an environment. Demographics refer to characteristics within a population such as:

* language and culture
* religion
* educational attainment (eg no qualifications, educated to GCSE or A level, educated to degree level)
* income level
* occupation
* family structure (eg single parent family, nuclear family, extended family)

Businesses are interested in the people that live nearby as they are more likely to be their customers.

# PESTLE - Technological

The T in PESTLE stands for **technological influences**.

Technological issues refer to innovations in technology that affect an individual, an industry and the market.

### Real-life example

Automation is an example of a recent influential innovation in technology. This has led to the introduction of driverless cars.

The expected benefits of this innovation are thought to be:

* people will have more time to do things whilst travelling in the car, eg sleep or read
* less chance of crashing as each driverless car uses technology to sense exactly where other cars are
* greater safety as most accidents are a result of human error
* no need to own a car and pay insurance as driverless cars could act like a taxi service



*Driverless cars are a recent example of technological advancement in the car industry*

However, technological advancements may also have some negative outcomes. Concerns have been raised about:

* the risk of hacking a driverless car
* poor weather conditions that could affect the responsiveness of driverless cars, eg snowy roads could disrupt cameras

Also, some people claim that driverless cars may simply take the fun out of driving.

Nevertheless, technological progress generally has a significant positive impact on society.

# PESTLE – Legal



The L in PESTLE stands for **legal influences**.

Laws describe rules. These are enforced through organisations such as the police force who make sure the rules are being followed. If they are not, they will intervene and potentially arrest anyone who is breaking the rules.

The legal environment is constantly changing as the government introduces new laws through parliament. These laws affect individuals and organisations by making certain things illegal or legal, or stating that they should be carried out in a specific way.

# PESTLE - Environmental

The second E in PESTLE stands for **environmental influences**.

Environmental influences refer to our surroundings. This can include:

* the air we breathe
* the water that covers most of the Earth’s surface
* the plants and animals around us

In recent years, scientists have been examining the way people affect the environment.

Particular concerns include air pollution, deforestation and acid rain. However, society is more aware of the damage that individuals and businesses can inflict on the environment as well as looking for ways to protect it.

# Source information

There are two types of source information:

* primary
* secondary

It is important to understand the type of source information, as this will influence its credibility.

## Primary source



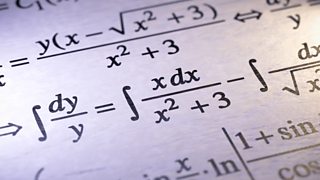
*Consider using original letters as your primary source of information*

A primary source is a source that is closest to the original event, research or experience.

Examples of primary sources are:

* an original letter
* an original diary extract
* notes from an original experiment or piece of research
* a novel
* a poem
* a play

## Secondary source



*A scientific article is an example of a secondary source*

A secondary source is one step away from the primary (original) event, research or experience.

Examples of secondary sources are:

* a scientific report based on notes from an original experiment
* a critique based on an original novel, play or poem

# Credibility criteria

Credibility of sources means how believable the providers (or sources) of the evidence are.

## RURU

RURU is an example of a credibility criteria tool that can be used when deciding if an information source is believable.

RURU is an acronym that stands for the following words.



# RURU - Reliable

When deciding if the source is reliable, you should consider the following:

* impartiality
* vested interest
* bias
* expertise

### Impartiality

Establishing impartiality means asking certain questions.

* Is the source taking a particular side?
* Does it have a motive to distort the truth and/or actively persuade?

If it isn’t taking a particular side, or hasn’t got a motive to distort the truth and/or actively persuade, it can be considered as impartial.

**Vested interest**

Another indicator of reliability involves deciding if the source has a vested interest.

In other words, does the source have something to gain from protecting or promoting that interest? Vested interest could involve:

* making money
* staying in a position of power
* creating a good reputation

**Bias**

Reliability involves deciding if the source is biased.

Source bias could be based on:

* being one-sided and ignoring evidence that might contradict this view
* lacking a neutral viewpoint that is strongly held
* not having an open mind as a result of a prejudgement which could lead to prejudice

**Expertise**

Reliability involves considering the expertise and reputation involved in the source.

In deciding whether a document is believable, it is important to make a judgement about the expertise of the person who wrote it. If someone is considered to have the necessary expertise, they are known as an authority.

Reputation is also important. Generally people with a high reputation are seen as having credibility as they can be relied on.

## RURU - Up to date

It is important to look at the date of the source. Information may go out of date and this may mean it becomes inaccurate.

## RURU - Relevant

Considering the relevance of the source is also important. The type of information required will affect the relevance of the source.

## RURU - Useful

The source information also needs to be useful. It needs to contain believable and appropriate information that can be understood.

# Online research

Online research can sometimes be overwhelming, but learning how to do it effectively will help save time and effort.

The following steps explain one method of doing this:

1. decide on the type of research you want to carry out
2. select search words carefully
3. decide on the type of source
4. be thorough
5. evaluate
6. cite

## Step one - type of research

Decide if the topic is **hard research** or **soft research**.

Hard research refers to objective and scientific research. The credibility of sources will be essential as hard research information may involve proven facts, figures, statistics and measurable evidence.

Soft research refers to subject matter that is opinion-based, cultural and more subjective. The credibility of sources is less important.

Sometimes the topic will involve both hard and soft research. It is important to understand the type of research as this will influence the type of source material.

## Step two - search words

Carefully select search words. Generally, between three and five search words are recommended.

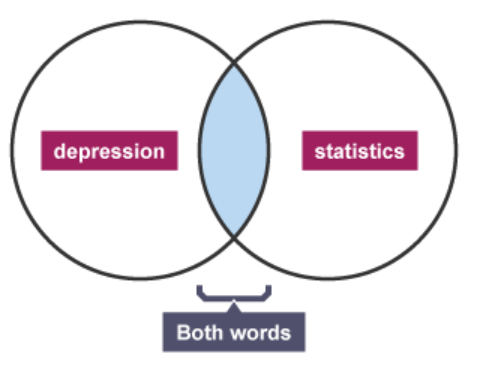
Use the three basic Boolean operators of AND, OR and NOT within your search to broaden or narrow results.

Write the Boolean operators of AND, OR and NOT in capital letters as the most effective way of searching for information.

### AND

Using AND in your search will **narrow the results**. It will tell the database that all terms searched must be present in the results.

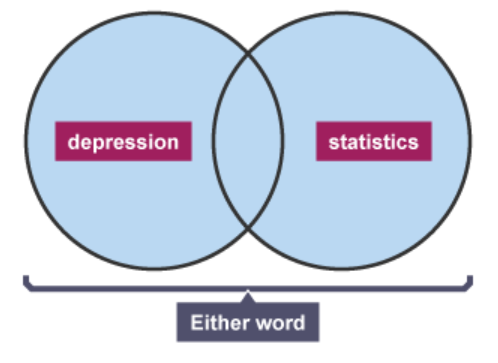
For example, the search words depression **AND** statistics will contain **both** words in the results.



This won’t guarantee that the words appear next to each other, only that both words will be present in the results. You could also include more than two words, eg depression **AND** statistics **AND** Wales.

### OR

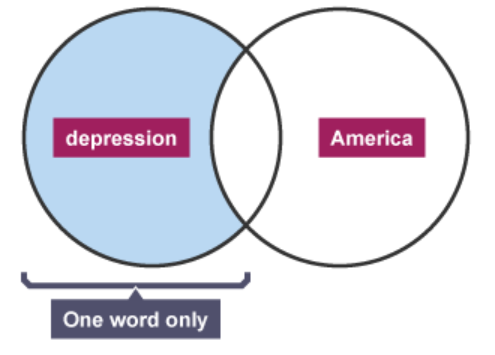
Using OR in your search will **broaden the results**, and can be used to request an alternative search. The results of the search must contain **either** of the words, eg depression **OR** anxiety statistics. Most search engines would interpret this as depression **OR** anxiety **AND** statistics.



### NOT

Using NOT in your search terms will tell certain search engines to **exclude words from the search**, eg depression **NOT** America will return results that contain the word depression but it will not show you results that are to do with America.

A search engine like Google however does not recognise the Boolean operator NOT and favours instead a minus sign placed directly in front of the word with no space between the minus sign and the word that follows it, eg depression –America.



### Brackets

Boolean operators can also be used together by using brackets. A database will search the words or terms that are in brackets first, and then search for the words that are not bracketed next, eg (depression OR anxiety) AND statistics. Results for this search will include information on depression and statistics/anxiety and statistics/statistics and depression, but it will not return results on depression and anxiety if the word statistics is not mentioned.

### Quotation marks

If you want to search for a full phrase, enclose it in double quotation marks, eg “depression statistics Wales”. However, this method is not one of the Boolean operators.

## Step three - type of source

Select credible sources if the topic is hard research.

### Hard research

Hard research sources can include:

* government sources which will have **.gov** in the title
* National Health Service sources which will have **.nhs.uk** in the title
* non-profit organisation sources which will have **.org.uk** in the title
* commercial sources which will have **.co.uk** or **.com** in the title
* websites that include **.ac** usually belong to colleges and universities
* academic journals which can be accessed using search engines such as Google Scholar

Wikipedia can be a useful starting place, but the content can be written and edited by anyone so it could be inaccurate, biased or outdated. The reference section at the bottom of a Wikipedia page may take you to the original source, and original or primary sources are likely to be most reliable.

### Soft research

Soft research sources can include:

* blogs
* forums and discussion sites
* product review sites

## Step four - be thorough

Look at the results on several pages and not just the first one. The most popular sites tend to appear on the first page. It is still worth looking at other pages as the information required may be valid – but just not as popular.

## Step five - evaluate

Evaluate webpages. Apply credibility criteria to decide whether the information is going to be worth using.

## Step six - cite

Cite or quote sources by creating a bibliography. This usually involves stating:

* author of the web article (or webpage)
* title
* year
* name of the site
* site’s web address
* date the article/page was accessed

### Example

McGrath, M. (2016). CO2 levels mark 'new era' in the world's changing climate. BBC News, [online]. Available at: http://www.bbc.co.uk/news/science-environment-37729033 [Accessed: 24 Oct. 2016].

| **Activity 9** |  |
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| **How could you assess if information from an author / source is reliable?** | |
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**Compare and contrast alternative critical thinking concepts in a workplace decision making process**

Critical thinking helps individuals look at situations from multiple sides, and then imagine several different ways to respond. This open process of thinking introduces ideas and solutions that expand the opportunities for success. One of the main reasons businesses don't embrace critical thinking as an essential part of their organization is that they feel they are just too busy. The focus on day-to-day operations and profit growth takes priority over implementing this soft skill. But companies that develop this skill can see an increase in teamwork and productivity, and a reduction in conflict. These long-term benefits outweigh the time invested in fostering the skill. You can incorporate activities into the workday that integrate critical thinking without using external training programs[[16]](#footnote-16).

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| The decision making process is a key part of problem solving. Critical thinking is one of the basic decision making and problem solving techniques. Critical thinking is the practice of gathering, analyzing, and evaluating information in a methodical manner. Essentially, this is a process for thinking clearly through several options and arriving at the best choice[[17]](#footnote-17).  The ultimate goal of decision making is to arrive at actionable conclusions, and critical thinking is the process that proves whether the conclusion is sound.  The Critical Thinking Process Involves 5 Steps  1, Identification – Identify the problem and define it accurately. 2. The Solution – Propose a potential solution. 3. Exploration – Create a potential action plan that results in the evaluation of the potential solution. 4. Action – Take the essential steps to complete and implement the action plan. 5. Re-evaluate – Review the action plan to determine if it solved the identified problem.  As easy as this process appears to be, its underlying concepts that make critical thinking successful are not understood. Critical thinking is based on four key elements or concepts:  LOGIC – Logic comes into play in discerning direct relationships between causes and effects. Logic is one of the most important skills to have when making decisions because logic enables accurate predictions to be made about the effects of potential solutions on people and systems.  TRUTH – For critical thinking purposes, truth is unbiased data about an event. Unemotional and unbiased facts are an essential part of the critical thinking process as it is used for problem solving. Critical thinking sorts out biases and focuses on documented data that will lend credence to the final conclusion.  CONTEXT – Creating a list of the effects of the final solution means considering the historical impacts of similar solutions. This list should also include extenuating pressures and factors that will or could be impacted by the final solution. Outside elements must be considered; solving one problem but creating other problems is not useful.  ALTERNATIVES – This means looking at potential solutions not currently being used. Critical thinking requires the consideration of new ways of approaching problems that meet current real-world objectives that are based on unbiased and accurate data.  However, the critical thinking process also depends on asking the right critical thinking questions. We can call this step critical questioning. It provides the ability to distinguish biases from facts, observers from stakeholders, and potential solutions from solutions. The importance of appropriate questions in reaching an actionable answer cannot be minimized. A question to open the discussion about critical questions is what does an appropriate question look like? The simple answer is an appropriate question will provide an actionable answer meaning one that will provide additional, helpful information. The next question is how is such a question formulated?  Here are some key points to consider when formulating a critical question:  >A good question is designed to solicit specific information. It must be stated concisely and with a direct meaning.  > Frame the question properly. A question with a clearly stated purpose must be framed correctly to be sure that the person to whom the question is directed understands the specifics question is seeking.  > Use open instead of closed questions. An open question cannot be answered by a yes or a no; it requires elaboration.  > Consider follow-up questions. The answer to your question may indicate that more questions are required to get the information you need. |

Here is a problem-solving process for team building that expands the use of critical thinking for your employees.

## 1. Name the situation.

When you name the situation, you present a single discussion point that everyone in the discussion can identify. This statement can be written on a whiteboard as a visual prompt so that everyone in the team keeps the focus on the point, redirecting the discussion to the focal point when the topic shifts. Critical thinking involves keeping an open mind about situations. You help participants remember the goal of the group by naming the situation.

## 2. List all possible solutions.

Brainstorming takes place during this part of the process. There is nothing outside the realm of possibilities at this point in the discussion. When you open the conversation to unlimited options, you expand thinking beyond one person. The ability to expand your thinking offers the conversation many possible solutions that you may not have considered without the expression of thoughts and opinions. Make sure that all potential solutions discussed during this time stay on task for the situation that has been named in step one. Critical thinking includes the ability to keep an open mind to other considerations and viewpoints without losing track of the end goal. You expand the discussion to see new options and also stay on task by identifying multiple opportunities.

## 3. Narrow your solutions to three options.

Everyone in the team needs to agree with at least one of the three options. Individuals who can find a compromise and create solutions from many perspectives are better able to bring a team together. Print each solution at the top of a whiteboard and write below each one a list of its advantages and disadvantages using a rational argument. Critical thinking skills offer the ability to look at situations rationally without judgments of good and bad or wrong and right. You help keep a rational discussion in place when you bring consensus to a few intentionally chosen solutions.

## 4. Choose one option from the three choices.

Make a final choice that offers the best chance of success based on the rational discussion about the situation. Review this choice in relation to how well it solves the designated problem. Critical thinking skills help individuals use a more systematic way to come to conclusions. This reduces the chance of making decisions based on incorrect inferences arising from emotional conclusions.

## 5. Put a plan in place to implement the chosen solution.

Your chosen solution should have timelines and a list that identifies which participants are responsible for what parts of the final plan. Critical thinking skills include the ability to commit to the chosen solution. You increase attention to detail and interest from the participants in implementing the solution when they are an integral part of the process.

## 6. Complete the plan.

Some employees find this part of the process the most difficult. Think of the number of times a great plan floundered because there was no follow-up. Make sure each person from the team has a part to play in the process that emphasizes their areas of expertise and interest. Complete regular reviews of people and timelines for project management. Critical thinking involves the ability to see the value of the overall plan. At this point in the process, individuals should be able to see the value of the solution and have buy-in since they were part of the process.

This problem-solving process creates an environment where critical thinking becomes a working part of finding a solution. For individuals who struggle with this method, you may want to consider some training in critical thinking. Overall, though, this process promotes critical thinking in your employees. You can also integrate this activity for making plans and creating a mission. The value added to your organization includes improved engagement, insight and productivity from your team.

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| Running a small business can be a deeply personal endeavour, a way to channel a passion or to live out a dream. But your business won't succeed, unless you regularly take cold, hard looks at the numbers and facts, and then you use this information to make choices consistent with your underlying vision. Good business decisions don't come exclusively from critical thinking, but critical thinking is a valuable tool, along with intuition[[18]](#footnote-18). Thinking Critically About Operations The more effectively you organize your work flow, the more efficiently your work gets done, and the more money your company earns. Critical thinking helps you examine processes, evaluate their efficiency and then make decisions about new systems and technologies. To think critically about operations, identify areas where you can collect and analyze data – such as the average dollar value of the items your production staff makes in an hour. Use this information to pinpoint areas that can be improved.  Brainstorm about solutions to remedy these inefficiencies. Then, test these solutions, gather new data and begin your critical thinking process again. Thinking Critically About Personnel It can be particularly difficult to use critical thinking when making decisions about personnel, because relationships and interactions can be so complex and charged. An employee may irritate you but that employee might still do excellent work. Or, you may truly enjoy the company of a co-worker who does sloppy, inefficient work. You can use critical thinking to separate your personal likes and dislikes from the needs of your business.  Your business will benefit the most from having efficient employees. If your morale is affected by having an employee you truly dislike, you might need to use critical thinking to evaluate whether the value of that person's work is worth your discomfort and frustration, and what legal and moral options you have. Thinking Critically About Customer Service As with personnel decisions, customer service situations often call for critical thinking in the face of an emotional response. A customer might leave an unfair, negative review on an online site, making you want to post a rude, scathing response. But doing so may cast an even more negative light on your business than the original negative review. A critical examination of the situation might lead you to wait a day to collect your thoughts, and then to respond in a measured, constructive manner.  Critical thinking in customer service decisions keeps you from unnecessarily losing customers, and – in the long run – it may even improve your image. |

# Problem solving vs decision making[[19]](#footnote-19)

**The key difference between problem solving and decision making is that solving problems is a process, whereas making decisions is an action based on insights derived during the problem-solving process. Many people use the terms problem solving and decision making interchangeably, but they are not the same.**

## Problem solving vs decision making

**Problem solving** is an analytical process used to identify the possible solutions to the situation at hand. Making decisions is a part of problem solving. Problem solving is a complex process, and judgement calls – or decisions – will have to be made on the way.

**Decision making** is a choice made by using one’s judgement. The art of making sound decisions is a particularly important skill for leaders and managers. You may need to make numerous decisions as part of the problem-solving process. And, of course, leaders and managers will need to use their decision-making skills to determine which solution to pursue. They will also typically need to confirm and set into motion next steps to fix the problem.

## Problem solving or decision making – which is most important?

Both problem solving and decision making go hand in hand, but success in one doesn’t automatically lead to the other. Those in leadership and management roles need to understand the difference between the two and aim to make lifelong improvements in both skillsets.

Decisions are made when multiple opportunities for action present themselves. You can make decisions, yet never solve the problem.

You can be adept at problem solving, or finding the root of an issue, and still lack the decision making skills to choose and action viable next steps to bring about a successful outcome.

Quick decisions don’t always lead to best-case solutions. A purist approach to problem solving doesn’t take into account that sometimes a business needs to make the best decision under the existing circumstances (where budget, time and resource constraints might play a factor).

## How does problem solving involve decision making?

Decision-making is part of the problem-solving process. A business may have multiple problems that all demand time and resource. A key role in management and leadership positions is deciding which problem to treat as a priority.

### Decision making in 3 steps:

1. Use problem solving to identify potential solutions – this may involve decision making, such as deciding to hold meetings with stakeholders or assigning team members to tackle particular areas of the problem
2. Determine which solution is the best fit for the problem at hand
3. Make a decision on next steps to action the chosen solution

## The similarities between problem solving and decision making

Problem solving and decision making are not synonymous with each other, but they are both important skills for leaders to have. People often use the terms problem solving and decision making interchangeably specifically because they have elements in common.

### Both problem solving and decision making involve critical thinking.

Critical thinking is a process by which you question your own assumptions – as well as those of others - in order to decide on next steps to solve a problem. Critical thinking often results in using a mix of research, analysis, questioning and exploration of new ideas in order to gain rich insight into a situation, becoming informed in a way that isn’t restricted by the subjective perspectives of peers or the status quo.

## How to use decision making in solving problems

It all boils down to one thing: When faced with a challenge, break the problem down into manageable components that require decisions to be made.

**Apply a decision making framework to reach a defensible conclusion in a workplace context in accordance with organisational policies and procedure**

# Critical Thinking in Decision Making[[20]](#footnote-20)

Critical thinking is often talked about as a stand-alone activity. Like some other individual activities, thinking critically may just feel good. Yet, critical thinking seems most useful when it aids other cognitive processes, such as applying critical thinking in decision making.

Anne Helsdingen from the Open University of the Netherlands and her colleagues studied an interesting issue about critical thinking in decision making. They wanted to know whether teaching critical thinking skills can improve judgment and decision making in general.

Helsdingen and her team define critical thinking as reasoned thinking with a purpose. They also describe some core critical thinking skills and abilities, such as being able to:

* Appreciate that your own opinions may be wrong
* Accept statements as true even when they conflict with your own views
* Temporarily adopt an initial position with which you disagree, and then reason from that starting point

A challenge, according to these researchers, is how to teach skills for critical thinking in decision making so that they transfer to new decision making problems. Transfer means being able to apply what you have learned to new tasks or new situations.

To tackle this problem, they start with a useful cognitive model of how decisions are made. Numerous researchers have worked with similar versions of the model of the years. One version is called “explanation-based decision making,” or the “story model.”

The idea is that people encounter situations. When they do, they recognize important parts of the situation from past experience. They then create a story (or explanation) about what’s going on and what will happen. They make decisions based on their story, and how things have turned out in similar stories past.

A problem with making decisions this way is that our stories tend to be less complete than we think – a failure of metacognition. We also overlook inconsistent details because we’re sucked in by the good story. According to Helsdingen, we might improve our intuitive approach by bringing critical thinking in the decision making process.

The researchers tested a method for including critical thinking in decision making. First, they explained the story model of decision making. Then, they prompted the learners to reflect on their story and thinking critically about it. Some of the questions they included to prompt critical thinking were:

* Do you have all the necessary information?
* Is there any conflict in the evidence?
* The devil’s advocate tells you that your story is wrong. Make up an alternative story. Is it more plausible than the original?

The students in the study read through cases about crimes that had been committed. Their job was to decide on the priority of each case for the police. They got feedback, so they could learn what makes cases more important in police work.

Some of the students received the critical thinking skills training while making these decisions. Others did not.

How well they made these crime decisions was not the most important thing, though. The main thing was how well they would do in a different situation after learning about critical thinking in decision making. That is, would their new skills transfer?

The researchers tested for transfer by having the students make different decisions about traffic offenses. The overall results suggested that the training on how to include critical thinking in decision making was effective. The benefits did transfer to the new decision making task.

As you come across decisions that you need to make, pay some attention to the stories you are telling yourself in the process. Use some of the ideas above and other critical thinking skills to improve your story and decision. Writing is also an excellent strategy for making good decisions. It may seem like a bit of extra work at first, but with practice will become more natural for your future decisions.

**A Decision Making Framework[[21]](#footnote-21)**

### 1. 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 making a decision or doing nothing and be aware that both options are actually potential solutions in themselves.

### 2. 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 making a decision and what are the consequences of missing this deadline?
* Is there an advantage in making a quick decision?
* How important is it to make a decision?  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 making a decision, you need to be clear who is going to take responsibility for it.

Remember that it is not always those making the decision who have to 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 has to 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 actually make the decision. When helping a friend, colleague or client to reach a decision, in most circumstances the final decision and responsibility will be taken by them.

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.

### 3. Information Gathering

Before making a decision, all relevant information needs to be gathered.

If there is inadequate or out-dated 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.

However, the amount of time spent on information-gathering has to 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.

### 4. 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.

### 5. 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.

### 6. 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 making a decision 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. However, 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 take into account how important each item on the list is in meeting the agreed values. This balance sheet approach allows this to be taken into account, and presents it in a clear and straightforward manner.

### 7. Making the Decision

Finally, it’s time to actually 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, don’t 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 very 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. Furthermore, 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 made a decision, 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.

| **Activity 10** |  |
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| **What is a defensible conclusion and why might you need one in your workplace?** | |
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**Articulate and justify decision making process**

## Making the Best Possible Choices[[22]](#footnote-22)

Imagine that your company has been expanding rapidly over the past 12 months. Sales are up 50 percent, but costs and overheads have also increased, so your operating profit has fallen. Decisions need to be made – and fast! But first you’re going to need to consider your options...

We make decisions every single day.

Some of your decisions will be so routine that you make them without giving them much thought. But difficult or challenging decisions demand more consideration. These are the sort of decisions that involve:

* **Uncertainty** – Many of the facts may be unknown.
* **Complexity** – There can be many, interrelated factors to consider.
* **High-risk consequences** – The impact of the decision may be significant.
* **Alternatives** – There may be various alternatives, each with its own set of uncertainties and consequences.
* **Interpersonal issues** – You need to predict how different people will react.

When you’re making a decision that involves complex issues like these, you also need to engage your problem-solving, as well as decision-making skills. It pays to use an effective, robust process in these circumstances, to improve the quality of your decisions and to achieve consistently good results.

This article outlines one such process for combining problem-solving and decision-making strategies when making complex decisions in challenging situations.

## A Systematic Approach for Making Decisions

In real-life business situations, decisions can often fail because the best alternatives are not clear at the outset, or key factors are not considered as part of the process. To stop this happening, you need to bring problem-solving and decision-making strategies together to clarify your understanding.

A logical and ordered process can help you to do this by making sure that you address all of the critical elements needed for a successful outcome.

Working through this process systematically will reduce the likelihood of overlooking important factors. Our seven-step approach takes this into account:

1. Create a constructive environment.
2. Investigate the situation in detail.
3. Generate good alternatives.
4. Explore your options.
5. Select the best solution.
6. Evaluate your plan.
7. Communicate your decision, and take action.

Let’s look at each of these steps in detail.

#### Note:

This process will ensure that you make a good decision in a complex situation, but it may be unnecessarily involved for small or simple decisions. In these cases, focus on the tools in Step 5.

### Step 1: Create a Constructive Environment

Decisions can become complex when they involve or affect other people, so it helps to create a constructive environment in which to explore the situation and weigh up your options.

Often, when you are responsible for making a decision, you have to rely on others to implement it, so it pays to gain their support. If it’s most appropriate to make the decision within a group, conduct a Stakeholder Analysis

to identify who to include in the process. To build commitment from others, make sure that these stakeholders are well represented within your decision-making group (which will ideally comprise five to seven people).

If you’re not sure how much say other people should have in the final decision, use the Vroom-Yetton-Jago Decision Model to decide whether to consult them or to give them a vote.

To avoid groupthink, encourage people to contribute to the discussions, debates and analysis without any fear of the other participants rejecting their ideas. Make sure everyone recognizes that the objective is to make the best decision possible in the circumstances – this is not the time for people to promote their own preferred alternative.

The Charette Procedure is a systematic process for gathering and developing ideas from many stakeholders. Alternatively, consider using The Stepladder Technique to introduce more and more people to the discussion gradually, while ensuring that everyone gets heard.

### Step 2: Investigate the Situation in Detail

Before you can begin to make a decision, you need to make sure that you fully understand your situation. It may be that your objective can be approached in isolation, but it’s more likely that there are a number of interrelated factors to consider. Changes made in one department, for example, could have knock-on effects elsewhere, making the change counter-productive.

Start by considering the decision in the context of the problem it is intended to address. Use the 5 Whys technique to determine whether the stated problem is the real issue, or just a symptom of something deeper. You can also use Root Cause Analysis to trace a problem to its origins.

Once you've uncovered its root cause, define the problem using Appreciation to extract the greatest amount of information from what you know, and Inductive Reasoning to draw sound conclusions from the facts. You can also use the Problem-Definition Process to gain a better understanding of what’s going on.

As well as this, consider using CATWOE to explore the problem from multiple perspectives, and to make sure you’re not missing any important information.

### Step 3: Generate Good Alternatives

The wider the options you explore, the better your final decision is likely to be.

Generating a number of different options may seem to make your decision more complicated at first, but the act of coming up with alternatives forces you to dig deeper and look at the problem from different angles.

This is when it can be helpful to employ a variety of creative thinking techniques. These can help you to step outside your normal patterns of thinking and come up with some truly innovative solutions. Our Creativity Tools page has a comprehensive set of tools and techniques that can help you generate great ideas.

Brainstorming is probably the most popular method of generating ideas, while Reverse Brainstorming works in a similar way, but starts by asking how you can achieve the opposite outcome from the desired one and then turning the solution on its head.

Other useful methods for getting a group of people producing ideas include the Crawford Slip Writing Technique and Round-Robin Brainstorming . Both are effective ways of ensuring that everyone's ideas are heard and given equal weight, regardless of their position or power within the team.

Don’t forget to consider how people outside the group might influence, or be affected by, your decision. You can do this by using tools like the Reframing Matrix, which uses 4Ps (Product, Planning, Potential, and People) as a way to gather different perspectives.

You can also ask outsiders to join the discussion, or use the Perceptual Positions technique to encourage existing participants to adopt different functional perspectives (for example, having a marketing person speak from the viewpoint of a financial manager).

If you have very few or unsatisfactory options, try using Concept Fans, to take a step back from the problem and approach it from a wider perspective, or Appreciative Inquiry, to look at the problem based on what's "going right" rather than what's "going wrong." This can help when the people involved in the decision are too close to the problem.

When ideas start to emerge, try using Affinity Diagrams to organize them into common themes and groups.

### Step 4: Explore Your Options

When you're satisfied that you have a good selection of realistic alternatives, it’s time to evaluate the feasibility, risks and implications of each one.

Almost every decision involves some degree of risk. Use Risk Analysis to consider this objectively by adopting a structured approach to assessing threats, and evaluating the probability of adverse events occurring – and what they might cost to manage.

Then, prioritize the risks you identify with a Risk Impact/Probability Chart, so you can focus on the ones that are most likely to occur.

Another way to evaluate your options is to consider the potential consequences of each one. The ORAPAPA tool helps you evaluate a decision’s consequences by looking at the alternatives from seven different perspectives. Or you could conduct an Impact Analysis or use a Futures Wheel to brainstorm "unexpected" consequences that could arise from your decision.

Other considerations are whether your resources are adequate, the solution matches your objectives, and the decision is likely to work in the long term. Use Starbursting to think about the questions you should ask to evaluate each alternative, and assess their pros and cons using Force Field Analysis or the Quantitative Pros and Cons approach.

Weigh up a decision’s financial feasibility using Cost-Benefit Analysis. Our Bite-Sized Training session on Project Evaluation and Financial Forecasting can also help you evaluate promising financial alternatives using a range of effective techniques such as NPVs and IRRs.

### Step 5: Select the Best Solution

Once you’ve evaluated the alternatives, the next step is to make your decision. If one particular alternative is clearly better than the rest, your choice will be obvious. However, if you still have several competing options, there are plenty of tools that will help you decide between them.

If you have various criteria to consider, use Decision Matrix Analysis to compare them reliably and rigorously. Or, if you want to determine their relative importance, conduct a Paired Comparison Analysis to decide which ones should carry the most weight in your decision.

Decision Trees are also useful when choosing between different financial options. These help you to lay options out clearly, and bring the likelihood of your project succeeding or failing into the decision-making process.

#### Group Decisions

If your decision is being made within a group, there are plenty of excellent tools and techniques to help you to reach a group decision.

If the decision criteria are subjective, and it's critical that you gain consensus, Multi-Voting and the Modified Borda Count can help your team reach an agreement.

When anonymity is important, decision-makers dislike one another, or there is a tendency for certain individuals to dominate the process, use the Delphi Technique to reach a fair and impartial decision. This uses cycles of anonymous, written discussion and argument, managed by a facilitator. Participants do not meet, and sometimes they don't even know who else is involved.

If you're working with an established team, use Hartnett's Consensus-Oriented Decision-Making Model to encourage everyone to participate in making the decision. Or, if you’re working with several different teams, or a particularly large group, assign responsibility for each stage of the decision-making process with Bain's RAPID Framework, so that everyone understands their responsibilities and any potential in-fighting can be avoided.

### Step 6: Evaluate Your Plan

With all the effort and hard work you’ve already invested in evaluating and selecting alternatives, it can be tempting to forge ahead at this stage. But now, more than ever, is the time to "sense check" your decision. After all, hindsight is great for identifying why things have gone wrong, but it's far better to prevent mistakes from happening in the first place!

Before you start to implement your decision, take a long, dispassionate look at it to be sure that you have been thorough, and that common errors haven't crept into the process.

Your final decision is only as good as the facts and research you used to make it. Make sure that your information is trustworthy, and that you’ve done your best not to "cherry pick" data. This will help you avoid confirmation bias, a common psychological bias in decision making.

Discuss your preliminary conclusions with important stakeholders to enable them to spot flaws, make recommendations, and support your conclusions. Listen to your own intuition, too, and quietly and methodically test assumptions and decisions against your own experience. If you have any doubts, examine them thoroughly to work out what’s troubling you.

Use Blindspot Analysis to review whether common decision-making problems like over-confidence, escalating commitment, or groupthink may have undermined the process. And consider checking the logical structure of your process with the Ladder of Inference, to make sure that a well-founded and consistent decision emerges at the end.

### Step 7: Communicate Your Decision, and Take Action

Once you've made your decision, you need to communicate it to everyone affected by it in an engaging and inspiring way.

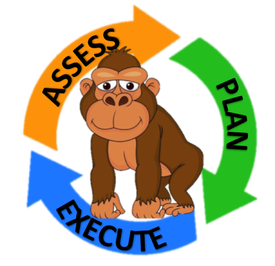
Get them involved in implementing the solution by discussing how and why you arrived at your decision. The more information you provide about risks and projected benefits, the more likely people will be to support your decision.

If people point out a flaw in your process as a result, have the humility to welcome their input and review your plans appropriately – it’s much better to do this now, cheaply, than having to do it expensively (and embarrassingly) if your plans have failed.

## How to Justify Your Decisions[[23]](#footnote-23)

Have you ever had to justify a decision? Have you ever looked back at a decision and wondered what went wrong or how you might improve? Each of us, whether for legal, professional, or personal reasons, have at some point faced these questions. And while many times you might have been able to provide a clear answer, most certainly there were times when you were less than certain. This is where A.P.E. can help, a decision tool that uses a straightforward, three-step model of; assess, plan, and execute, to break down the decision process.

## ****Assess, Plan, Execute****



As a general model, A.P.E. is a cyclical process that spans both time and scope. We assess the situation, develop a plan, and then execute. These are the three (3) key elements of any decision, and therefore are fundamental to the underlying process of making a decision. A.P.E. is a model that can be used to describe the process of making a rapid, high stakes decision in a dynamic, uncertain environment, yet is equally capable of allowing us to understand how a decision is made under stable conditions that are low stakes, static, and certain.  
   
Given this flexibility, the primary value of A.P.E. is that regardless of context we can use it as a tool to analyze past decisions or deliberate on future decisions. We can also look at outcomes, whether potential or realized, and use A.P.E. to help dissect the key components that make up the decision process.  
   
Of equal value is the ability to use A.P.E. as a common language across decision scenarios. This makes A.P.E. a useful way to communicate, regardless whether we are discussing a decision to build a new trauma center or we are discussing a split second decision to perform emergency surgery. It allows the same language to be used in order to discuss a high-level policy decision, yet communicate how we might best apply that policy under real world conditions.

**Assess**  
Being a continuous cycle, we begin this short discussion with the concept of making ongoing assessments. This includes monitoring of both the external and the internal, of both the physical world and our mental sandbox. This occurs even while we sleep to lesser or greater degrees of awareness. In a state of deep sleep we are rather oblivious, while in lighter phases a noise or bump in the night rouses us from our slumber.  
   
Assessment includes concepts such as situational awareness and sensemaking, whether passive or active. It also includes the idea of intuitive, informal assessments as well as rational, labored analysis. Using human action and goal theory, assessment involves determining the extent to which there are gaps between our current state and some desired future state. Assessment helps establish what gaps exist, how large the gap, and which gap or gaps deserve the bulk of our time and resources, i.e. where we should focus.  
   
**Plan**  
Given our assessment, the next step is to plan a potential course of action to close any gaps. From the simple to the complex, developing a plan is highly dependent on the situation and the perceived time to act. In a very dynamic environment where the stakes are high and time is limited, plans will most likely involve basic pattern recognition and sequential evaluation, moving on to execution as soon as the first workable or “good enough” plan is determined. In a less dynamic environment, where time is sufficient, planning can involve the development and evaluation of multiple concurrent options, including goals and sub-goals.  
   
**Execute**  
With our plan, the final part of the process is to actually execute. This involves taking the plan out of our heads, off the drawing board, and taking concrete steps to turn the plan into reality. This includes implementation, monitoring feedback, making adjustments, and evaluating outcomes. A good example is repeated throws to hit a bull’s eye with a dart. The assessment and plan are relatively static, while we monitor and adjust dart after dart. Another example would be an after action review, where the focus is on lessons learned.    
   
**Reassess**  
As an ongoing cycle, execution then blends back into assessment. Unless we become fixated or experience a form of ‘tunnel vision’ or ‘cognitive lockup’, we are most often not oblivious to the world around us. Using a dual state theory of mind, during execution we are both focused on feedback related to goal progress, but also are continuously updating the overall situation. In a state of continuous sensemaking, we periodically pause actions related to execution, taking some time to reflect and reassess.  
   
**Application: The Good, the Bad, and the Ugly**  
There are basically three outcomes whenever we make a decision. There are outcomes we consider clearly good, there are outcomes we consider clearly bad, and then there are the ugly decisions where we just throw up our hands because we just aren’t sure what to think. In every case, A.P.E. is a tool that is a form of cognitive task analysis (CTA) that can help us better understand and ultimately improve our decision-making ability.    
   
**The Good**  
One thing I like about the work of psychologist Gary Klein is that he focuses on how first responders and similar professions make great decisions under time stress and less than ideal conditions. I don’t think we do that often enough. It seems like that the vast majority of the time we wait for a bad outcome and then try to figure out what went wrong. Klein does pretty much the opposite. His work takes good outcomes and applies CTA to figure out how we can repeat them, improve upon them, and share them. In this way, a novice nurse or firefighter advances towards making expert level decisions at a much faster pace.  
   
**The Bad**  
There are outcomes that sometimes are clearly bad, e.g. a plane crash. While a bad outcome doesn’t necessarily mean a bad decision was made, it is a common application of CTA. We want to be able to analyze our decisions in an effort to explain and prevent a similar bad outcome in the future. Using A.P.E. is a simple form of CTA that can help narrow in on what might have gone wrong. Was there an inaccurate assessment, was it a bad plan, or was there a failure to execute? Based on the findings, what do we need to adjust?   
   
**The Ugly**  
In my opinion the more fun application of A.P.E. is when we have uncertain outcomes. Most often forward focused, it looks at each phase of the decision process in an effort to predict or provide clarity to an expected outcome. In the reverse, an outcome is first assumed, and then A.P.E. is applied to develop decisions and potential courses of action. This is more a spy vs. spy or red team application, where CTA is used to get inside the mind and motives of a 3rd party. Figure out their A.P.E. cycle and then counter with your own.  
   
**Upgrading to Advanced A.P.E.**  
Given the various ways A.P.E. can be applied, adding it to your cognitive tool belt doesn’t cost much. In fact, the basic version is free. It comes pre-installed as a hardwired feature of being human. From the time you get up until you go to sleep, you continuously assess, plan, and execute. As long as things run smoothly, you don’t even notice A.P.E. working in the background. This is the basic, more intuitive side of our natural ability to decide. To then go from basic to advanced, requires us to actively consider the good, the bad, and the ugly. It requires formal consideration of each phase of the decision process. By doing so, it can help you to justify, explain, and learn how to improve your decision-making ability.

| **Activity 11** |  |
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| **How can you create a ‘constructive environment’ and what are the potential benefits?** | |
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**Conduct review of effectiveness of decision making, including critical self-reflection**

## Evaluate Effectiveness[[24]](#footnote-24)

Perform online surveys and ask customers to answers questions to evaluate the effectiveness of your decisions. Document workplace data if your decision involves employees, manufacturing, or processes and systems. Expect complaints from customers and employees. Determine if they do not like changes in general and eventually will adapt to them or if you have made a mistake that needs further analysis to resolve. Don't overlook serious feedback that can have a negative impact on your profits, but be open to suggestions and continue the process of decision-making and implementation until all departments run smoothly.

## Evaluate the Results[[25]](#footnote-25)

Decision makers must evaluate the results of a decision to improve the processes and outcomes of future decisions.

### Learning Objectives

Recognize the appraisal stage and the development of future insights as the final stage in the decision-making process

### Key Takeaways

#### Key Points

* Evaluation is the final step of the formal decision process. Evaluating outcomes may help the decision maker learn lessons that will improve her decision-making abilities.
* Self-esteem is an important factor in evaluating results because it may lead to decision makers viewing the results of their decision with favourable bias. This can cause people to filter out or discount information that might show the decision in an unfavourable light.
* It can also be valuable to assess the process by which a decision was made to make future decisions more effective.

#### Key Terms

* **appraisal**: A judgment or assessment—especially a formal one—of the value of something.
* **insight**: An extended understanding of a subject resulting from identification of relationships and behaviours within a model, context, or scenario.

After a decision has been made and implemented it is important to assess both the outcome of the decision and the process by which the decision was reached. Doing so confirms whether the decision actually led to the desired outcomes and also provides important information that can benefit future decision making. Learning from experience is important to continuous improvement and effectiveness.

### Evaluating Outcomes

The objective of evaluating outcomes is for the decision maker to develop insight into the decision. Many of the lessons developed in this stage come out of examining the implications of the decision. Insight can be obtained by referencing key business metrics such as increased revenue, lowered costs, larger market share, or greater consumer awareness. One can also consider whether a decision had the desired effect. For example, a decision to hold additional training seminars may have been intended to make it more convenient for people to learn a new technology. However, if overall attendance did not increase, then the decision may not have addressed the underlying cause of why people did not go to training events. Once the outcome of a decision is known, the results may imply a need to revise the decision and try again.

When decision outcomes are not clearly measurable or have ambiguous results—some parts good, some bad—is not uncommon for people to emphasize the favourable data and discount the negative. Maintaining self-esteem also may cause decision makers to attribute good outcomes to their actions and bad outcomes to factors outside their control. This type of bias can limit an honest assessment of what went right and what didn’t, and thus reduce what can be learned by carefully evaluating outcomes.

### Appraising the Decision Process

It can also be valuable for decision makers to step back and examine the process by which a decision was made. Often they can learn lessons that will benefit future decisions. If the decision was made by a group, having a conversation with all participants is often worthwhile. Whether enough information was gathered and whether its quality was high enough are two questions that should be considered. How the decision maker dealt with uncertainty or bias can be examined in the face of the results that have transpired. If estimates were off, or it becomes clear that emotions played too large a role in making a choice, it is important to learn from those mistakes so they won’t happen again. Finally, it is important to question whether all the relevant parties contributed information and knowledge needed for the decision, and whether everyone who should have been involved was given the chance to participate.

| **Activity 12** |  |
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| **How can you evaluate the effectiveness of decision making?** | |
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# Reflective Practice[[26]](#footnote-26)

## What is Reflective Practice?

Reflective practice is, in its simplest form, thinking about or reflecting on what you do. It is closely linked to the concept of learning from experience, in that you think about what you did, and what happened, and decide from that what you would do differently next time.

Thinking about what has happened is part of being human. However, the difference between casual ‘thinking’ and ‘reflective practice’ is that reflective practice requires a conscious effort to think about events, and develop insights into them. Once you get into the habit of using reflective practice, you will probably find it useful both at work and at home.

### Reflective Practice as a Skill

Various academics have touched on reflective practice and experiential learning to a greater or lesser extent over the years, including Chris Argyris (the person who coined the term ‘double-loop learning’ to explain the idea that reflection allows you to step outside the ‘single loop’ of ‘Experience, Reflect, Conceptualise, Apply’ into a second loop to recognise a new paradigm and re-frame your ideas in order to change what you do).

They all seem to agree that reflective practice is a skill which can be learned and honed, which is good news for most of us.

Reflective practice is an active, dynamic action-based and ethical set of skills, placed in real time and dealing with real, complex and difficult situations.

## Developing and Using Reflective Practice

What can be done to help develop the critical, constructive and creative thinking that is necessary for reflective practice?

Neil Thompson, in his book People Skills, suggests that there are six steps:

1. **Read -** around the topics you are learning about or want to learn about and develop
2. **Ask -** others about the way they do things and why
3. **Watch -** what is going on around you
4. **Feel** - pay attention to your emotions, what prompts them, and how you deal with negative ones
5. **Talk** - share your views and experiences with others in your organisation
6. **Think** - learn to value time spent thinking about your work

In other words, it’s not just the thinking that’s important. You also have to develop an understanding of the theory and others’ practice too, and explore ideas with others.

**Reflective practice can be a shared activity:** it doesn’t have to be done alone. Indeed, some social psychologists have suggested that learning only occurs when thought is put into language, either written or spoken. This may explain why we are motivated to announce a particular insight out loud, even when by ourselves! However, it also has implications for reflective practice, and means that thoughts not clearly articulated may not endure.

**It can be difficult to find opportunities for shared reflective practice in a busy workplace.** Of course there are some obvious ones, such as appraisal interviews, or reviews of particular events, but they don’t happen every day. So you need to find other ways of putting insights into words.

Although it can feel a bit contrived, it can be helpful, especially at first, to keep a journal of learning experiences. This is not about documenting formal courses, but about taking everyday activities and events, and writing down what happened, then reflecting on them to consider what you have learned from them, and what you could or should have done differently. It’s not just about changing: a learning journal and reflective practice can also highlight when you’ve done something well.

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| The Reflective Learning Process |
| Identify a situation you encountered in your work or personal life that you believe could have been dealt with more effectively. |
| **Describe the experience** |
| What happened?  When and where did the situation occur?  Any other thoughts you have about the situation? |
| Reflection |
| How did you behave?  What thoughts did you have?  How did it make you feel?  Were there other factors that influenced the situation?  What have you learned from the experience? |
| Theorizing |
| How did the experience match with your preconceived ideas, i.e. was the outcome expected or unexpected?  How does it relate to any formal theories that you know?  What behaviours do you think might have changed the outcome? |
| Experimentation |
| Is there anything you could do or say now to change the outcome?  What action(s) can you take to change similar reactions in the future?  What behaviours might you try out? |

## The Benefits of Reflective Practice

Reflective practice has huge benefits in increasing self-awareness, which is a key component of emotional intelligence, and in developing a better understanding of others. Reflective practice can also help you to develop creative thinking skills, and encourages active engagement in work processes.

In work situations, keeping a learning journal, and regularly using reflective practice, will support more meaningful discussions about career development, and your personal development, including at personal appraisal time. It will also help to provide you with examples to use in competency-based interview situations.

Reflective practice is one of the easiest things to drop when the pressure is on, yet it’s one of the things that you can least afford to drop, especially under those circumstances. Time spent on reflective practice will ensure that you are focusing on the things that really matter, both to you and to your employer or family.

Reflective practice is a tool for improving your learning both as a student and in relation to your work and life experiences. Although it will take time to adopt the technique of reflective practice, it will ultimately save you time and energy.

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| Benefits of Self Reflection[[27]](#footnote-27) There are 3 main benefits of self-reflection:  **1. Strengthening Emotional Intelligence**  When taking time to self-reflect you are looking inwards. This helps to build two components to emotional intelligence: self-awareness and self-regulation. Self awareness gives you the ability to understand your emotions, strengths, weaknesses, drives, values and goals, and recognize their impact on others. Self-regulation involves the ability to control or redirect your disruptive emotions and impulses and adapt to changing circumstances. Building these skills will improve both your personal life and professional role as a leader.  **2. Acting With Integrity**  Becoming clear on your core values will help to strengthen your integrity and lead you to better decisions. Our integrity is often put to the test during stressful times. Taking time to review your key decisions and actions in the recent past and evaluating them against your core values is critical to acting with integrity. Doing this consistently can solidify your values and make the decision making process easier in the future.  **3.  Being More Confident**  Confidence is crucial for managing a busy, complex life that includes meeting career, family, community and self needs. It helps in effective communications, decision-making, and influence building. The more your reflect on your strengths and how you can build upon them the more confident you will be in the future.  We become more confident in where our strengths lie and how to close the gaps in our areas of weakness. |

**Seek meaningful feedback from organisational management**

Finally, information monitoring and reporting have to be built into the decision to provide continuous testing, against actual events, of the expectations that underlie the decisions. Decisions are made by people. People are fallible; at best, their works do not last long. Even the best decision has a high probability of being wrong. Even the most effective one eventually becomes obsolete[[28]](#footnote-28).

This surely needs no documentation. And every executive always builds organized feedback—reports, figures, studies—into his or her decision to monitor and report on it. Yet far too many decisions fail to achieve their anticipated results, or indeed ever to become effective, despite all these feedback reports. Just as the view from the Matterhorn cannot be visualized by studying a map of Switzerland (one abstraction), a decision cannot be fully and accurately evaluated by studying a report. That is because reports are, of necessity, abstractions.

Effective decision makers know this and follow a rule which the military developed long ago. The commander who makes a decision does not depend on reports to see how it is being carried out. The commander or an aide goes and looks. The reason is not that effective decision makers (or effective commanders) distrust their subordinates. Rather, they learned the hard way to distrust abstract “communications.”

With the coming of the computer this feedback element will become even more important, for the decision maker will in all likelihood be even further removed from the scene of action. Unless he or she accepts, as a matter of course, that he or she had better go out and look at the scene of action, he or she will be increasingly divorced from reality. All a computer can handle is abstractions. And abstractions can be relied on only if they are constantly checked against concrete results. Otherwise, they are certain to mislead.

To go and look is also the best, if not the only way, for an executive to test whether the assumptions on which the decision has been made are still valid or whether they are becoming obsolete and need to be thought through again. And the executive always has to expect the assumptions to become obsolete sooner or later. Reality never stands still very long.

Failure to go out and look is the typical reason for persisting in a course of action long after it has ceased to be appropriate or even rational. This is true for business decisions as well as for governmental policies. It explains in large measure the failure of Stalin’s cold war policy in Europe, but also the inability of the United States to adjust its policies to the realities of a Europe restored to prosperity and economic growth, and the failure of the British to accept, until too late, the reality of the European Common Market. Moreover, in any business I know, failure to go out and look at customers and markets, at competitors and their products, is also a major reason for poor, ineffectual, and wrong decisions.

Decision makers need organized information for feedback. They need reports and figures. But unless they build their feedback around direct exposure to reality—unless they discipline themselves to go out and look—they condemn themselves to a sterile dogmatism.

Good decision making is critical at any stage of a career. But it’s not easy to master. We are faced with tons of decisions every day. Sometimes, it’s important to act quickly, while at other times it’s necessary to gather feedback and give the matter more thoughtful consideration. It’s no secret that feedback is an important asset in the workplace. When done well, another perspective not only sparks individual growth and self-improvement but also leads to team and company-wide change as well[[29]](#footnote-29).

## Making Decisions

Imagine being in a meeting and hearing, “We’re going to make this decision before we leave the room with input from everyone present.” Wouldn’t every single team member feel valued for what they have to say and contribute?

The art of good decision-making entails gathering input and perspective from your team, and then pushing towards a final decision in a way that makes it clear that all voices were heard. Input from others will help you get to the right decision faster, and with buy-in from the team.

Gathering plenty of input from key players before making a final decision is essential for sustained success. Decision makers may be hampered by experiences in their backgrounds, prejudgments and self-interest, all of which can lead to flawed decisions. The additional perspectives help expose errors in the process that you as the sole decision maker may make. If provided effectively, feedback can inspire, uplift and motivate the decision maker to make better decisions.

## Seeking Input

If you want honest feedback, it’s important to let your team members know that their voices really do matter. Make sure you create a culture where everyone is encouraged to speak honestly and has a chance to weigh in on decisions. It’s important for managers to leverage a team’s capabilities and motivate team members. Getting employee input in the decision-making process also serves the dual purpose of creating a culture that values transparency and its employees’ opinions.

When seeking input from others, be specific about what you need. The more context and details you provide, the better. Clear expectations ensure everyone is on the same page. Recognizing the gaps in your own knowledge will also help bring differing opinions to the table. Encouraging group debate and challenge helps ensure that opposing points of view have been heard and understood. Team members will be more engaged and more aware of the impact of their decisions. The right process can be powerful for all those involved.

Incorporating feedback allows us to test our ideas. We can see what our assumptions are and where they might go wrong. Not to mention a decision reached collaboratively, instead of being handed down, has a positive impact on team dynamics and company culture as well.

Be sure to thank your team after making a decision, and to explain the decision that was made and why. This will make the team feel even more empowered and valued. And it helps create an environment where people want to contribute and will give you their best ideas.

Feedback can be a great tool in the workplace. Not only does it give you insight into individual behaviours but it can also provide opportunities for growth and innovation. The practice of asking for and giving feedback is not only critical for development but for decision making as well. Seeking input from team players in the decision-making process is a way to make the most the most of your employee’s ideas and talents. Drawing upon the diverse range of interests, experiences and backgrounds in order to make a decision often allows you to look at the problem in different ways and to come up with better and more innovative solutions. Being an inclusive leader and soliciting those different voices will help you get to the best ideas and decisions.

| **Activity 13** |  |
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| **Why is reflective practice a useful skill?** | |
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**Identify areas for self-development**

## Developing Yourself as a Critical Thinker

Critical thinking is a fundamental skill for college students, but it should also be a lifelong pursuit. Below are additional strategies to develop yourself as a critical thinker in college and in everyday life:

* **Reflect and practice**: Always reflect on what you’ve learned. Is it true all the time? How did you arrive at your conclusions?
* **Use wasted time**: It’s certainly important to make time for relaxing, but if you find you are indulging in too much of a good thing, think about using your time more constructively. Determine when you do your best thinking and try to learn something new during that part of the day.
* **Redefine the way you see things**: It can be very uninteresting to always think the same way. Challenge yourself to see familiar things in new ways. Put yourself in someone else’s shoes and consider things from a different angle or perspective.  If you’re trying to solve a problem, list all your concerns: what you need in order to solve it, who can help, what some possible barriers might be, etc. It’s often possible to reframe a problem as an opportunity. Try to find a solution where there seems to be none.
* **Analyze the influences on your thinking and in your life**: Why do you think or feel the way you do? Analyze your influences. Think about who in your life influences you. Do you feel or react a certain way because of social convention, or because you believe it is what is expected of you? Try to break out of any molds that may be constricting you.
* **Express yourself**: Critical thinking also involves being able to express yourself clearly. Most important in expressing yourself clearly is stating one point at a time. You might be inclined to argue every thought, but you might have greater impact if you focus just on your main arguments. This will help others to follow your thinking clearly. For more abstract ideas, assume that your audience may not understand. Provide examples, analogies, or metaphors where you can.
* **Enhance your wellness**: It’s easier to think critically when you take care of your mental and physical health. Try taking activity breaks throughout the day to reach 30 to 60 minutes of physical activity each day. Scheduling physical activity into your day can help lower stress and increase mental alertness. Also, **do your most difficult work when you have the most energy**. Think about the time of day you are most effective and have the most energy. Plan to do your most difficult work during these times.

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| In a world where we’re information overloaded, thinking critically is key. Here are 5 easy ways to build critical thinking into your day-to-day[[30]](#footnote-30): 1. Observe your responses to social media Deliberately and with intention, look at a video or headline and then examine further to find out what is underneath it.  We tend to take things at face value. When you use social media how do you put into play your critical thinking skills? 2. Question your assumptions We make them in seconds. Critical thinkers are curious and look to find the what and the why behind everything.  You can build in reflection time to your day – even five-minute pockets here and there can make a difference.  Become more forensic when presented with a situation and try to work out where assumptions are being made. We probably make them so automatically in so many situations without thinking. Well, now is the time to change that and to ask why. 3. Adopt a different perspective Get into other peoples’ heads as much as you can! This is where empathy comes in. Involve others in decision making too. If you are fortunate enough to be working in a culturally diverse environment, find out how others might view a problem. You will uncover valuable insights. 4. Take time to reflect It will always seem like there is not enough time to reflect – make thinking and reflection a priority in any decision-making process.  You can build in reflection time to your day – even five-minute pockets here and there can make a difference because a little more time allows for this careful thought process and better decision making to occur and become more of a default setting. 5. Be honest and open Communicate clearly, don’t fabricate and don’t fake knowledge. Prepare properly for meetings and presentations so you don’t have to ‘fill in the gaps’ based on your poor preparation.  Slow down a little and don’t take on so much. Take the time to do things properly and well. |

**Develop plan for future process evaluations**

## Developing Your Foresight[[31]](#footnote-31)

One of the most important things to master when you’re developing good critical thinking skills is the concept of foresight.

This ability is one of the toughest elements of the critical thinking process.

It requires that you use the information presented to you in a way that can predict the behavior of others or even market trends.

When you learn this skill well enough, it’s almost like telling the future.

However, foresight doesn’t involve a crystal ball.

Instead, it requires using your critical thinking skills to make a good guess at what you can expect to happen based on your research and expectations.

For example, if you find out that there was a grain shortage due to poor weather conditions, you can easily predict that the cost of various grain-dependent items, like bread and cereal, will go up.

That said, foresight is a skill that also requires you to have the ability to predict what will happen when you make a decision or perform an action.

For example, if you hire 10 new employees, you need to have the foresight to know how that will affect your budget, whether or not you can afford them, and how your other employees might react to having so many new people on board with them.

Failure to take that information into account can sabotage your business success.

**Barriers to Critical Thinking: What is Clouding Your Judgments?[[32]](#footnote-32)**

There will be moments when we’ll lose sight of our problems’ best solution because something prevents us from moving towards the right path. Something is clouding our vision and holding us back from realizing that we are doing things wrong. These are the barriers to critical thinking.

* Egocentric Thinking

This kind of thinking focuses too much on oneself. People who are egocentric thinkers are so consumed by their self-narratives and self-interests. They fail to consider other people’s ideas and thoughts. Sometimes they may not even be aware that they’re doing it.

Egocentric thinking usually stems from extreme closemindedness. If we wish to overcome this barrier, we should start being mindful of other’s needs. Our minds will gradually open up once we realize that their perspectives are as valid as ours.

* Biased Experiences

The biased view of our experiences stems from egocentric thinking. While the saying “experience is the best teacher” rings true, our views of our experiences are usually distorted because of how it made us feel. When we’re too stuck inside our heads, this can lead to a cycle of self-delusion.

To get out of our biased experiences, it is important to question ourselves multiple times if we are thinking of our situation rationally. A good way of confirming this is to ask our trusted friends what they think. We must choose someone who can tell us things as it is –– someone who isn’t afraid to speak the truth even if that’s not what we want to hear.

* Arrogance and Intolerance

Another offshoot of egocentric thinking are arrogance and intolerance. These two characteristics can set anyone back because it is often a result of a bloated sense of self. When someone believes in themselves too much, they refuse to see that others may have better ideas.

Arrogance and intolerance mainly stem from the fear of failing –– resulting in wanting to be right all the time. To combat this, we must learn to let go of the stubborn need to be right. Life is not simply about getting ahead of everyone else.

* Schedule Pressures

Working against time can often cause people to think poorly and make the wrong decisions. While it is true that time is of the essence, unrealistic expectations will just result in a vicious cycle of shortcuts, procrastination, and unnecessary stress.

Oftentimes we underestimate the time and effort it takes to get things done, leading to the pressures of having to work within tight and unreasonable schedules. To break out of such a vicious cycle, we must learn how to properly plan things out before we even start. This will save us from wasting time and resources that we will never get back.

* Drone Mentality

This mentality typically happens when we become too comfortable with the status quo. We begin to act without thinking, without paying attention to the world around us, like we are on autopilot. We forget how to act in the face of new challenges and would rather stay within our comfort zones.

To wake ourselves up from autopilot mode, it is important to constantly expose ourselves to things that excite us. This can be hard to do on our own, so it definitely helps to surround ourselves with people who will inspire us to go after personal growth.

* Social Conditioning

One of humanity’s biggest problems is its inability to accept each other. More often than not, our refusal to accept others is a result of social conditioning from the moment we are born. We are taught to believe that certain stereotypes are the absolute truth.

This is why it’s important to recognize that our way of life is not the only right way to live. Once we choose to see beyond the stereotypes, we will learn to get rid of beliefs that only cause more harm than good.

* Groupthink

When every form of media you come across expresses the same train of thought, people are bound to think that what they’re saying is the norm. This is another facet of social conditioning, and it becomes very dangerous when no one bothers to question the information that they’re being fed.

Depending on what is being established as the norm, it can be uncomfortable to go against the group’s tide. But to be a critical thinker means you have to continually ask if something makes logical sense. It’s about upholding your principles when you know that something clearly isn’t right.

To successfully avoid running into these harmful barriers, we must first become aware of what they are, and that we are not immune to them. When we know what we should consciously avoid, we allow ourselves to make informed decisions and become better at practicing the best critical thinking techniques.

| **Activity 14** |  |
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| **What are some common barriers to critical thinking? Give an example of when you (or someone you know) have encountered one of these.** | |
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