



The 4 Types Of Critical Thinking Skills – Explained!

By Chris Drew (PhD) / October 23, 2022

Critical thinking skills are the mental process involved in processing information. They help us with problem solving, decision making, and thinking critically.



There are four types of “thinking skills”: convergent or analytical thinking, divergent thinking, critical thinking and creative thinking. We use these skills to help us understand the world around us, think critically, solve problems, make logical choices and develop our own values and beliefs.

The 4 Types Of Thinking Skills



The 4 types of thinking skills are:

1. Convergent Analytical Thinking

[Convergent thinking](#) is the process of coming up with the best answer to a question using our memory, resources around us, or logic.

This thinking skill does not require significant creativity or lateral [thinking strategies](#). It is not the best for solving problems that are complex or require thinking out of the box. Instead, it uses very straightforward thought processes. A convergent thinker simply needs to apply already established procedures and memory recall to reach the 'correct' answer.

Convergent thinking is very commonly used for standardized and multiple choice tests. These sorts of tests simply assess our knowledge and ability to apply knowledge to simple and logical situations.

The key elements required to be a skilled convergent thinker are: speed, accuracy and logic.

2. Divergent Thinking

[Divergent thinking](#) is the exact opposite of convergent thinking. It involves coming up to solutions, paths forward or new ideas when there is no single correct answer.



Questions like “should I study to become a doctor or a lawyer?” may not have a simple answer. You might be good at both, and both options might bring you happiness and a good life. So, which option should you choose?

To come up with solutions to questions without clear answers, you need to break down the possibilities and analyze each part. You might create a pros and cons list, a Venn diagram or a table to lay out your options and consider each one in turn.

We often encourage divergent thinking from a very young age. For example, we encourage children to play or simply ‘be playful’ in order to solve problems and discover how their world is complex and full of possibility.

3. Critical Thinking Skills

Critical thinking skills involve analyzing something in order to form a judgement about it.

A critical thinker does not take the assumptions of a topic for granted. Instead, the critical thinking involves ‘critiquing’ what you are viewing using your available intellectual knowledge.

People who think critically can use three processes to develop critical insights on a topic: deduction, induction and abduction.

Deduction includes the critical thinking skills that involve drawing conclusions based on the facts at hand. You have all the facts available to you to come to a clear and unambiguous conclusion about a topic. For example, a doctor does



blood tests to determine if someone has a virus. The blood tests come back positive, so we can deduce that you definitely have that virus. Deduction is a great skill to use if you want to solve problems.

Induction includes the critical thinking skills that involve drawing conclusions based on a generalization. You don't have all the exact information at hand. However, you think critically and realize you are aware of patterns, clues and a methodology that can help you induce the answer. For example, you come to the doctor exhibiting a fever, sneezing and coughing. The doctor doesn't do tests, but they induce that you probably have influenza because your symptoms are characteristic of someone with the flu.

Abduction includes the critical thinking skills that involve coming to a conclusion that is the most likely or logical based on the small amount of knowledge that you have. You can't be sure of the answer, but you can think critically and make an educated guess. For example, you may see that a cat is on the roof. The most logical answer is that the cat got up there by climbing a nearby tree and jumping from it to the roof, but you can't be sure.

Read about more [examples of critical thinking](#) on our full write-up.

4. Creative Thinking

Creative thinking involves thinking about a topic in unusual, unconventional and alternative ways to generate new ideas about an established topic. A creative thinker will try to address an issue from a perspective that hasn't been used before.



While creative thinking may appear illogical, it is in fact a great driver of human development. Creative thinkers identify gaps in marketplaces or new, easier, faster and better ways of doing things. When a creative thinker comes up with a great new way of approaching an issue, their new method can become the new orthodoxy.

How To Maintain Your Thinking When School Is Over

You need to keep your mind active in order to maintain improve your critical thinking skills.

When I finished high school, I stopped **thinking mathematically**. I stopped using calculus, trigonometry, geometry, etc. in my daily life. Ten years on, my critical thinking skills that involve mathematics are very poor.

By contrast, I kept **reading and writing** in the ten years since graduating high school. I am much better at these creative and critical thinking skills than I was when I was at high school. That's because I continued to exercise those creative and critical thinking skills aspects of my mind on a regular basis.

Some ways to maintain your mind's neural pathways and keep up strong critical thinking skills include:

- Doing Sudoku quizzes daily
- Doing Crosswords daily
- [Reading a book](#) per month
- Completing mathematical quizzes regularly

- Taking courses in community college
- Doing brain exercise apps focused on critical thinking



How To Improve Your Critical Thinking Skills

To improve your critical thinking skills, you need to go beyond just *maintaining* your mind.

You cannot just keep doing the same thing day-in, day-out and expect to get better. Critical thinkers are always working on self-improvement.

Instead, you need to exercise new parts of your brain by [studying regularly](#) and keep creating new neural pathways in your mind. This emphasizes the [importance of education](#) for critical thinking.

You always need to be thinking about things that are new and difficult for you to understand.

The things that you learn need to be difficult. It's through the difficulty and discomfort in thinking that you are improving your critical thinking and problem solving skills. It's just like going to the gym: no pain, no gain.

Some ways to improve your critical thinking skills include:

- Taking college courses (or one of [these alternatives](#)) in topics that you find very difficult
- Taking classes in an [online school](#)
- Learning using new learning strategies that make you uncomfortable

- Taking up new and diverse hobbies



The more you think, the better you will get at being a critical thinkers. You'll become faster, more creative and overall better at thinking if you practice and try out new strategies.

Tools To Help You Think Better

There are also some tools that we call [cognitive tools](#) that help you with your critical thinking skills. These tools don't do the thinking for you, but they help you to become a good critical thinker.

Thinking tools can help critical thinkers include:

- Helping you structure your thoughts
- Giving you a blueprint or scaffold for finding new angles to approach a topic
- Providing prompts to move your thinking forward

Some tools that can help your thinking skills include:

1. A Brainstorming Mind Map

A brainstorming [mind map](#) can be made with a simple piece of paper. Simply write the topic at the top of the piece of paper and scrawl any and all key things you can think about down onto the paper. During the brainstorming process, no ideas are bad ideas. You can use critical thinking to critique and dismiss some

of your ideas later on; but the brainstorming session can help get your mind moving and exercise those critical thinking skills.



2. A Radar Chart

A radar (or spider) chart is very similar to a brainstorming mind map, but it also shows the links between concepts.

To create a [spider chart](#), write the topic you're thinking about in the middle of the piece of paper.

When you come up with a new idea, write it near the middle of the paper and draw a line from the topic in the center to the idea. If you come up with new ideas or sub-ideas based on that first key idea, you can write them down and draw a line from one idea to the other. Whenever you come up with related ideas, you should draw a line between them to show their relationship.

3. A Process Chart

A process chart shows the sequence of steps from a question to its logical answer. Often in science and mathematics classes, you need to provide your process chart to your teacher to show how you came to your [conclusions](#). You may hear your teacher tell you to “show your critical thinking skills”!

4. A Spreadsheet

Even a simple spreadsheet using Excel or [Google Sheets](#) can help with your critical thinking. It will help you lay out ideas into an easy-to-read table to help you keep track of your thoughts, your processes and your different categories.

Categorizing ideas into columns and rows can help you to identify new patterns in data.



5. A Pros And Cons List

A simple pros and cons list can help you to get your ideas out of your brain and onto paper. Once it's on paper, you can go through the list systematically and compare the pros and cons directly with one another. Once you've done this, you may have a better idea of what conclusions to come to.

6. De Bono's Six Thinking Hats

Another strategy for helping your thinking skills is to use De Bono's Six Thinking Hats. These are six metaphorical 'hats' that you can put on. Each hat represents a different way to look at a topic. When you 'put the hat on', you have to think from the perspective of the hat. These hats are great for your critical thinking.

The six hats are:

- **Red Hat:** Think about your feelings, [emotions](#) and hunches about a topic
- **White Hat:** Think about the information that's available to you and what it can reveal about the topic
- **Yellow Hat:** Think about the benefits and value in the situation you're thinking about.
- **Black Hat:** Think about the risks, difficulties and challenges that a situation you're thinking about may cause.
- **Green Hat:** Think about the alternatives and creative approaches you can apply to a topic.

- **Blue Hat:** Think about the processes you can use and how to manage the situation logically.



Related: [5 Types of Skills](#)

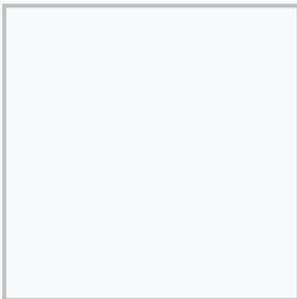
Final Thoughts

Thinking skills are necessary for problem solving, decision making, and thinking critically. They help you do your job better, make smart decisions, and improve your own life. You can classify your thinking skills into: convergent thinking, divergent thinking, critical thinking, and creative skills. You could also use strategies such as De Bono's thinking hats, a pros and cons list or a [process chart to help you think](#).

Make sure you keep your mind active, try new things and do quizzes to maintain your thinking skills throughout your life.

[Chris Drew \(PhD\)](#)

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Dr. Chris Drew is the founder of the Helpful Professor. He holds a PhD in education and has published over 20 articles in scholarly journals. He is the former editor of the Journal of Learning Development in Higher Education.



2 Thoughts On “The 4 Types Of Critical Thinking Skills – Explained!”

TED

OCTOBER 26, 2022 AT 9:25 PM

Professor Chris,

I have a question.

As you outline, “There are four types of ‘thinking skills’”.

1. convergent or analytical thinking,
2. divergent thinking,
3. critical thinking and
4. creative thinking.

All four are processes of “thinking”. This leads me to ask, “What is the description of the process of thinking?”



W. Edwards Deming, American engineer, statistician and professor observed:

”If you can’t describe what you are doing as a process, you don’t know what you are doing.”

If we can’t describe thinking as a specific process, we don’t know what we are doing.

Without knowing the specific process of thinking, we don’t know how to perform:

analytical thinking,
divergent thinking,
critical thinking or
creative thinking.

I repeat my question. “What is the description of the process of thinking?”
Thank you for your time,
Ted

[Edit](#)

[Reply](#)

CHRIS DREW (PHD)

OCTOBER 31, 2022 AT 4:47 AM



Hi Ted,

Definitions are such tricky things! It's hard to find consensus in the scholarly community about a simple definition of anything, really. Although, I'd agree on the face of it that thinking is a process (and the knowledge or idea is the product). You might be interested in [the concept of process thinking](#), which we often juxtapose to systems thinking (which, really, also involves 'thinking as a process'), but as you have teased out this fact that thinking is inevitably a process, I wanted to give you a nudge to a resource that'll help you go deeper on the topic.

All the best!

Chris

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Drew, C. (November 14, 2019). *The 4 Types of Critical Thinking Skills – Explained!*. Helpful Professor. <https://helpfulprofessor.com/thinking-skills/>



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