

Can you learn to think better? It's both a skill and a habit that develops over time with practice. The key to becoming a master of your mind is through the disciplined set of standards and methods of critical thinking.

But what is critical thinking and why is it important? Critical thinking is disciplined thinking which helps us analyze, assess and improve the way we treat information in a fair-minded way. It's a skill for learning but also for life. Bloom's Taxonomy shows that there's a hierarchy and complexity to learning, which goes beyond just understanding.

At the bottom, we have "Remember & Understand", it's where knowledge begins and unfortunately where a lot of students stop. You get your feet wet with a subject: recall some key words and definitions, and maybe even give basic explanation of main concepts. However, when it comes to doing anything with that knowledge you're at a loss.

Here's where "Apply" comes in, you use your understanding to apply your knowledge in unfamiliar contexts. That question on your exam, that's ten times harder than the ones you did in class, is your professor's way of testing your understanding and ability to relate concepts across multiple situations.

The next step is "Analyze". At this stage you understand the material or concepts because you've broken them down into their components. You know you've arrived at this phase when you're able to understand something's meaning, how it works, and why it works that way.

When you reach "Evaluate", you've analyzed a subject so thoroughly that you're able to take a stand on an issue, using your knowledge to inform your reasons. This is what professors generally look for when you're asked to write a critical paper or report on an experiment.

"Create" is what you should strive towards. Whether it's a new hypothesis or a new procedure, the ability to compile information together into a new functional whole shows a deep level of knowledge.

Real learning can occur when you've taken the time to go through these steps. Not only is this skill essential for university, employers want critical thinkers who can handle day-to-day problems and move an organization forward, not mindless robots. So here's how you develop your critical thinking skills.

### Step 1: Questioning & Assessing Information

Here, you must clarify your understanding of the claim or situation. Questioning nurtures this skill. To guide you, ask:

What information do we need to answer the question?

What conclusions seem justified in light of the facts?

What is our point of view? Do we need to consider another?

As a critical thinker, avoid falling victim to the unproven or biased claims of others. Use these questions to discern the truth and draw logical conclusions:

First, question the acceptability of the statements that lead to the conclusion.

What are the sources of the information in the premises? Are they reliable and valid?

Then, question if there are alternatives to the premises.

Are there other views? What are the main reasons for and against them?

Make sure there is value in analyzing and de-constructing your thinking on a particular claim.

For example, it's not important to analyze a claim that "pollution is bad for the environment" as this is a widely known fact.

Some valuable claims to assess instead could be:

- What are the effects of certain pollutants on the environment?
- Who stands to lose if these pollutants were to be outlawed?"
- Who stands to gain?

### Step 2: Be skeptical

Your sources inform your reasoning so be selective. Not all sources are objective and the stance of a recommended textbook is not the only take on a topic.

So, to discern a source's validity, ask:

- What is the impact of this person's view and how does it relate to their personal agenda?
- Are there any explicit or implicit prejudices?
- Is this a peer-reviewed source?

### Step 3: Understanding by making connections

Simply acquiring knowledge is only the first step to understanding. Making connections between concepts adds value to knowledge, no matter how concrete or abstract your connections are.

To do this, ask yourself:

- What does this concept explain?
- Why is it important?
- How does it help me in my day to day?

### Step 4: Challenge your assumptions

We often jump to conclusions, fail to think through implications or ask the wrong questions.

To evaluate your own thinking, ask yourself:

what assumptions did I make in this situation?

- why did I make those assumptions?
- what evidence led me to those assumptions?

- what am I missing and What do I need to know more about?

#### Step 5: Forming logical conclusions

Forming logical conclusions promotes original thought but make sure you look at all the evidence. The evidence must be enough to avoid hasty generalizations that lead to logical fallacies. A logical fallacy is a flaw in your process of thinking.

Avoid constructing your conclusions in ways that portray your claim as a certainty. For example, concluding that a low midterm grade equates failing a final.

#### Step 6: Reframing & incorporating different perspectives

There are 2 main ways to do this. First,

Thinking within your discipline

University is about learning how to think within a specific discipline, to think biologically, philosophically or mathematically.

Different disciplines approach similar issues differently. Here are some key strategies to mastering thinking within a discipline:

- Know and learn how to use key concepts within your discipline. To make sure you understand them, try teaching them to a peer outside your discipline.
- Know the methodologies and forms of reasoning used by your discipline. For example, in sociology a researcher may use questionnaires to assess how pollution affects people in a particular region. Alternatively, a researcher in chemistry may use water sample testing to analyze the effects of pollution on a specific water source.

The second way to reframe and incorporate different perspectives is by

Thinking outside the box

One outcome of thinking critically is being creative, imagining alternatives and identifying contrasting concepts. Creativity is not an innate ability, it's a skill you continuously cultivate. People tend to give up after a few minutes of brainstorming but your most enlightening ideas occur after much reasoning. Brainstorm with friends and use visual aids like mind maps.

#### Step 7: Communicating and clarifying your own thoughts

As you develop as a critical thinker, you must also learn to clarify your thoughts and convey their meaning. If someone cannot summarize what you have said to your satisfaction, then consider that your points may not be clear enough.

Here are some strategies for clarifying your thinking:

- State one point at a time.
- Make your reasons explicit, there should be a clear distinction between your reasons and your view
- Prove that your reasons are acceptable and sufficient: Do this by
- Using relevant analogies to help people relate to and visualize your ideas

- Anticipate and embrace objections

People tend to disregard counter arguments for fear of their view being weakened, however, this makes for lazy thinking. There's nothing wrong with having strong claims as long as they are logical. You can use strategies to respond to counter arguments.

Here's a few:

Be clear about the source of your reasons: If you are relying on observation, say so and do what you can to show that your observations were collected in optimal conditions. If you are relying on testimony, explain why the witness is competent, and unbiased. If you are relying on measurements, say something about the accuracy and reliability of the measuring device.

The best way to hone your critical thinking skills is with continued practice. Though it's often an uncomfortable and challenging process, your thinking informs your decisions, and beliefs. It's integral to all aspects of your life so it's important that you do it well. Critically thinking as often as you can, will make sure your actions are well-informed.