

# TUNE YOUR COGNITIVE STRATEGIES

## WHAT DO YOU GET OUT OF IT?

- The good.
  - Better returns on thinking time.
    - Your cognition is much more powerful than just the part you have conscious access to, and it's crucial to make good use of it.
    - A small tweak to how your brain processes information in general is worth more than a big upgrade to your conscious repository of cognitive tricks.
  - Goal-oriented thinking.
    - When working on real-life problems, your peak performance matters less than the ability to simply *think useful thoughts at all*.
      - For example, if your current top priority is "start my own company", but you keep having insights about "what I'll say to my current boss when I finally quit"... that's maybe not the best way to make progress.
  - Improved ability to fix [cognitive biases](#).
    - To the extent that other approaches work, it's because they manage to change your cognitive strategies. It's much easier when you know what you are doing.
  - More creativity and good ideas just "popping into your head".
    - There's no magic to it! Once you understand how the process works, it can be optimized for any purpose you choose.
  - Less anxiety about performing well in cognitive endeavors.
    - Once you realize exactly what is and what isn't under your conscious control, you stop beating yourself about not doing the impossible.
- The bad.
  - Uncanny valley.
    - Applying cognitive effort to thought streams (as they have already formed in consciousness) is rarely useful, but most people would already have developed some half-decent thinking style on top of it.

- While rebuilding from better foundations is certainly a good idea long-term, you'll probably need to slow down and re-learn some of your old tricks.
- Control anxiety.
  - Having good quality thinking happen effortlessly and automatically is great... unless you are a control freak, in which case you should [Tune Your Emotional Processing](#) before even reading this page.

## HOW TO TELL IF YOU HAVE IT?

*Note: everyone has cognitive strategies, and challenging yourself with intellectual activity tends to improve them (e.g. mathematicians tend to be pretty good at this). However, it is very unlikely that you have reached your full potential by blind gradient descent.*

- You know how to think without "trying hard".
  - The cost you pay for high quality thinking is mostly time, which you know needs to be free from other concerns.
  - You definitely don't pay the cost in effort or willpower.
- Your thoughts don't get "stuck" when you most need them.
  - You can recognize and deal with every situation in which your mind stops generating useful output, whether it's because of going blank, spinning in circles, or going off into fantasy lands.
- There's a constant stream of good ideas occurring to you.
  - If your brain is well tuned, it is going to produce useful output whenever it is feeling fresh and has a spare minute or two.

## HOW DOES IT WORK?

- Consider this metaphor:
  - Imagine your mind as a giant bubbling cauldron full of "thoughts", including "feelings", "ideas", "words", "concepts", "memories", etc.
    - Some of those "thoughts" rise to the top of the cauldron, and get picked up by your conscious attention.
    - If the conscious "you" is like a cook standing over the cauldron, then the cook has only a very small spoon at their disposal. They can only taste whatever has bubbled to the surface.

- Your creativity and thinking power come from the full depth of the cauldron.
  - The rules of how thoughts interact and form new thoughts are the same, regardless of whether those thoughts are conscious or not.
- When you don't like whatever has risen up to the top of the cauldron, the last thing you want is to try to "fix it".
  - You only have access to the topmost layer, so it would be hopelessly ineffective anyway.
  - But it's much worse than that - by attempting to "fix" your cognition, you stop being able to see how it works.
  - How well your cognition works is shown not by what thoughts you have at the moment, but rather by the pattern of how one or more thoughts combine into a new thought.
- Instead, you want to learn as much as possible about the differences ("deltas") between each thought and the next, as they occur to you.
- Your brain already has the ability to update its cognitive strategies (this is called "meta-cognitive reinforcement learning"). However, the usual mechanism works with unnecessary levels of indirection, as in:
  - Cognitive strategy -> Thought -> Action -> Reward or punishment
    - You get rewarded or punished for what you do (as measured by your brain's chemical responses). Good thoughts are more likely to be followed by good actions. Good cognitive strategies are more likely to generate good thoughts. On average, your brain will slowly update its cognitive strategies in the right direction.
  - Cognitive strategy -> Thought -> Reward or punishment
    - You have learned to be happy or unhappy about having certain ideas, even when you don't yet know how they apply to the real world. Now your brain gets rewarded or punished for thoughts, and on average good thoughts are more likely to be generated by good cognitive strategies. Your brain can update cognitive strategies faster, according to heuristics about what makes ideas "good".
- However, by carefully looking at the "deltas" between conscious thoughts, we can get rid of the last remaining level of indirection (this is the key insight of this whole page!):
  - Cognitive strategy -> Reward or punishment
    - You have learned to perceive your cognitive strategies as they happen, and developed some heuristics that tell you whether they are good or

bad. Now your brain can update cognitive strategies immediately, and do it regardless of the topic of your thoughts.

- Even when you generate a useless idea from another useless idea, you can still track whether the cognitive strategy behind it was sound, and learn from the experience.

## HOW TO LEARN IT?

- Step 1: basic sanity checks.
  - For practice, we'll start with improving some simple local efficiency heuristics. They definitely aren't the final goal, but will later be useful regardless of what goal you have.
  - Pick a small problem, question or thinking puzzle of any kind.
    - It's best to use something that you think you can solve in a few minutes, and which makes it easy to see how well you are doing.
    - Beware of the "school trauma": think about *whatever you want* to think about, not things *someone else* would like you to think about.
      - If you bend to external pressure, you'll just reinforce the pathological pattern that thinking tools are your enemies, because they limit your freedom.
    - If you don't have any ideas, you can always pick "picking a puzzle" as your puzzle.
  - Notice a thought chain.
    - Load the puzzle into your memory, and let go.
    - Instead of focusing on solving the puzzle, focus on the question "where do my thoughts go when this puzzle enters my attention"?
    - At minimum, try to notice a sequence of two thoughts (the shortest possible "chain"): the initial question you asked yourself, and the first thought that occurred to you afterwards.
      - It's very important to focus on what feels like very quick, atomic transitions. Do not wait until you have a full word or sentence formed in your mind!
      - Aim for sub-second timescales. In fact, you can easily have a chain of 5 or more conscious thoughts in one second. If you think you can't, you're just missing skill in noticing it.
    - Repeat as many times as necessary to get a clear read, while changing the starting point if it gets too boring.

- Example: just now, my thoughts:

*looking at the typed word "Example:" -> wanting to know what to type next -> flash of dread at not having anything prepared -> noticing that flash of dread -> noticing that I noticed it -> looking at the whole thought chain so far -> noticing I executed the technique -> realizing I can use this as an example -> picking a grammatic form to describe it -> ...*

- Extract the pattern of "deltas".

- After you become aware of at least one micro-scale thought chain, you can reflect on the principles that generated it.
- This probably shouldn't be a very detailed or time-consuming analysis - your advantage here is that you have lots of raw data, so you don't need to be very parsimonious with it.

- In fact, the act of reflecting on a thought chain will necessarily generate dozens of a new thought chains. It's basically impossible to run out of data to reflect on and learn from.

- You'll probably find a large amount of low-hanging fruit, by noticing patterns which are obviously broken, as in:

*blank mind -> noticing having a blank mind -> verbal thought "my mind is blank" -> feeling of despair -> blank mind -> ...*

- More common low hanging fruit, and examples of useful cognitive strategies:

- If you hit an impasse (no new useful thoughts), relax and let your mind wander to related but different topics.
  - If your mind wanders too much, check why you even care about the problem.
  - If you think the same thought again, change the topic.
  - If you know what you are going to think, think something else.
  - If you think with lots of effort, remember it's useless and just watch your thoughts happen.
  - If you don't know in which direction to think, pick whatever seems fun.

- Think which "deltas" are doing good work for you, and which aren't.

- This will send a signal to your brain to learn and update the corresponding cognitive strategies.
  - Do not try to assume forceful control over what you think! This applies both to thoughts and "deltas".

- All you ever need to do is notice useful deltas, and have that little "oh, nice!" reaction. That's it. Really.
  - The delta which moves you into noticing your deltas is very useful. Give it the reward it deserves!
- Step 2: make sure to win.
  - Notice thought chains you generate naturally as you go about your life.
    - While local efficiency (not getting stuck etc.) is useful, it hardly has the power to change how you play the game. The biggest challenge in an open environment is knowing what to focus on in the first place.
      - This means that more than anything, you need to learn cognitive strategies that connect you to your goals, and means of achieving them.
    - For example, you can notice thought chains when you:
      - choose the next task to do,
      - do better or worse than expected,
      - plan your day or week,
      - process emotions,
      - change the topic in conversations,
      - accept or reject offers.
    - It's recommended to do it without setting up external reminders.
      - A far better solution is to reinforce cognitive strategies which would make you naturally remember at the right times.
      - E.g. one or two straightforward deltas can take you from "feeling of mild dissatisfaction with decision" to "wanting to know how to think better", from where it's close to remembering to reflect on your thought chains.
  - Get the deltas.
    - Reconstruct as much as you can of how your mind went there. In real life, you are not restricted to the micro scale.
      - Try to identify both low-level and high-level patterns, such as key insights, emotions, changes of topic, and inspiration.
      - How does your emotional state influence your deltas?
        - You probably have a different cognitive style when excited, angry, happy, anxious, overwhelmed, content, scared, restless etc.

- Keep your goals in mind.
  - Warning: this is definitely not about "policing" your thinking. You should never try to put restrictions on the content and style of your thoughts.
    - Do not use this under pressure (when someone or something tells you what goals you should have).
    - Also do not fall into the trap of rejecting vague, dreamy thoughts as worthless.
      - The best use of your brain when tired is probably to let it unwind and think relaxed, creative thoughts.
  - How well have these particular deltas performed in the past?
    - This amounts to maintaining a rough "track record" for all of them.
  - What are they optimized to do?
    - You'll often find goals which you don't necessarily feel proud of, e.g. feel better, impress someone (who?), prove something to yourself.
      - However, trying to attack those goals would be a terrible mistake - they are there as a result of your real preferences.
        - If you are surprised by this, it just means you didn't know enough about yourself.
      - You need to understand where the patterns come from, and what you really want to achieve in any given situation (see also [Tune Your Emotional Processing](#)).
  - How well do you expect to do if you continue the current trend?
    - What would it be like to do better than that?

## FURTHER PROGRESS

- Turn the skill on itself.
  - Reinforce cognitive strategies that will help you with reinforcing cognitive strategies, finding better ways to reinforce cognitive strategies, and so on ad infinitum.
  - The skill will then quickly bootstrap itself into your most powerful and general thinking tool.

back to: [Be Well Tuned](#)