Debugging Your Brain

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Overview

You have read about when to apply the techniques in this book, about how to enter an introspective state (whoop!), about how to process experiences by putting them into words, and about how to validate those experiences to non-judgmentally accept them as inputs. In this chapter, you will learn how to identify unhelpful thought patterns and how turn them into helpful ones. This is also known as "cognitive restructuring".

Cognitive Restructuring

Cognitive Restructuring is the process of identifying and countering unhelpful thought patterns. Unchecked, these lead to downward spirals of negative emotion. They make you feel worse in an unproductive, unhelpful way. They tend to be irrational or exaggerated. Some examples include: all-or-nothing thinking, over-generalization, and magnification.

These unhelpful thought patterns are also known as "maladaptive thought patterns". Maladaptive means it is unhelpful; it gets in your way. Maladaptive thought patterns are doing a bad job of being adaptive ("mal" = bad, "adaptive" = helpful).

Another term for these unhelpful thought patterns is "cognitive distortions", because they give you a distorted view of reality.

Example Scenario

One evening I was excited to attend a tech meetup. It was raining and I was wet and cold. On my way to the event I stepped in a puddle! I heard several thoughts go off in my head. These thoughts made me feel worse, and I really considered not going. I gave myself a "whoop! to introspect a bit, and took stock of my automatic thoughts:

- "Ugh! Wet shoes are the worst!".
- "If I'm running late, I shouldn't even go!"
- "Today sucks."

Identifying Cognitive Distortions

This book covers the most common cognitive distortions, but there are many more. You can learn about even more of these by searching online for "cognitive distortions" or "maladaptive thought patterns". The Wikipedia article on Cognitive Distortions is a good place to start, and an easy reference to share with

friends.

Here are some of the most common "maladaptive thought patterns". To get good at identifying these, it's helpful to have a name for each one. Knowing the name also makes it easier for you to manipulate them in your mind. The names also make it easier to describe these to other people. They are grouped to make them more memorable, but many of these could fit in multiple groups.

Common Cognitive Distortions

Feelings vs Facts

- **Emotional Reasoning** is when you believe something based on a feeling, as opposed to thinking about it and basing it on facts.

Generalizing: Needs nuance

- **Overgeneralization** is applying a small amount of information to explain a whole situation, inaccurately. Not incorporating enough nuance.

- **Labeling** is a subset of overgeneralization. This could be labeling someone or something and using that to make inaccurate predictions.
- **All or nothing thinking** is when you think in a binary yes/no or good/bad kind of way. Truth often lies in a gray area between the two extremes.

Focusing: Positive versus negative

- **Magnification** is focusing too much on something (often negative), and **minimization** is focusing too little on something (often positive).
- **Disqualifying the positive** is when you convince yourself that certain positive things doesn't count. This could also be discounting the positive, reducing the relative weight of importance you give it.

People

- **Personalization** is believing you have more control or influence over a situation than you actually do, often by not taking into account external forces.
- **Mind reading** is believing you know what another person is thinking or feeling without any evidence, often negative.

Outcome Prediction

- **Fortune-telling** is believing you know how something will turn out, usually for the worse.
- **Catastrophization** is focusing on the worst possible outcome of a situation, especially when it is a less likely outcome.

Identifying Cognitive Distortions - Example

After I stepped in the puddle earlier, I noticed these automatic thoughts:

- "Ugh! Wet shoes are the worst!".
- "If I'm running late, I shouldn't even go!"
- "Today sucks."

Each of these are cognitive distortions. They made me feel worse in an unhelpful, unproductive way. Dwelling on these thoughts is not going to be helpful (rumination!). Which cognitive distortions apply to these?

Thinking "wet shoes are the worst" is an example of **magnification**. It is blowing the problem out of proportion - not only are they bad, but they're the WORST. I could also consider this

emotional reasoning since I am coming up with this based on my mood, and not based on facts.

Thinking "If I'm running late, I just shouldn't go!" is an example of **all or nothing thinking**. By this perspective, going on time is an option and not going is an option, but going late is not an option. The implied reason why not to go is "because arriving late will look bad". That reasoning is an example of **mind reading** and/or **fortune telling** that the folks at the event would judge you when you arrive late. This is also potentially **disqualifying the positive** things that may happen by attending, like learning and making connections with people.

Thinking "today sucks" has a lot going on. This is an example of **overgeneralizing** the entire day, **disqualifying the positive** things that happened earlier in the day, and **fortune telling** that the rest of the day is also going to be bad.

Countering Cognitive Distortions

Once you identify what cognitive distortions you are experiencing, take a moment to be proud. Identifying these is no small feat! Even if you don't know what to do with some of them next, it is worth celebrating that you took a moment to be introspective,

that you took stock of automatic thoughts and feelings, AND even identified some as cognitive distortions.

Once you know which cognitive distortions you are dealing with, you can deal with them one at a time. One technique (from "Feeling Good: The New Mood Therapy" by David Burns) is the "two column technique". The left column is for describing your "automatic thoughts" and the right is for brainstorming some "deliberate thoughts".

In the left column, write the automatic thought and any maladaptive thoughts that apply. This is descriptive of what's happening. In the right column, write out any more-adaptive thoughts you can think of.

This can help you in the moment you're experiencing this, or it might help you process a past experience, or it might help prepare you in the future if you have similar automatic thoughts.

Countering Cognitive Distortions - Example

In the "wet shoes" example from earlier, I ended up thinking of several more-adaptive thoughts for each of my maladaptive ones. I ended up going to the event after all, and I was very glad I did.

Here is the two-column chart I drew up in my head in the moment

I was considering not going:

INSERT TWO-COLUMN CHART

Wet shoes are the worst... This example of **emotional reasoning** and **magnification** can be countered by... I could adjust this to be more accurate and rational by thinking something more adaptive, like "Wet shoes are not literally the worst, obviously. I am feeling really uncomfortable and cold right now, and these wet shoes are making it worse. It's really unfortunate this happened.". This may not be as satisfying to exclaim as "wet shoes are the worst!", but that's the point - this defuses you, and prevents you from experiencing a downward spiral of more, even more negative automatic thoughts and emotions.

If I am late... I could defuse this with something like "The gray area answer is often pretty good, lemme think about it more. Is it really that bad to be late? Will it make you look so bad that it's literally not worth attending? No! Hmm I thought going was worth it before, and it's probably still pretty worthwhile. Actually yeah, the topic is great and the people are great and..."

Today sucks...

Debugging Metaphor

This whole process may feel similar to you if you have worked with "code smells" and/or "refactoring techniques" in the past.

In software development, "code smell" is something you notice about a piece of code that suggests there may be an issue with it. You might not be able to identify or name what exactly "smells" about the code right away, sometimes you just have a sense something is off. The code smell can cause issues - things like "brittle code" where a small change to the code can dramatically break functionality. With practice, you can get good at identifying and naming code smells.

For each code smell, there is usually a specific "refactoring technique" associated. A refactoring technique is a way you can edit the code to keep how it works, while getting rid of the code smell. This improves the quality of the code base, and avoids the issues code smells bring. As you get better at the refactoring techniques you get better at knowing when to use them, quicker at implementing them, and may even be able to name them. There are many possible refactoring techniques for a given code smell, it's up to you to choose an appropriate one.

For an example, imagine a function that is 30 lines long - you

might notice this as a code smell called "long function". You might break this long function down into several smaller functions, using the refactoring technique "extract function". If this improves readability, that's a positive change!

Or imagine a function with a name that doesn't tell you what it is like "fmt()", that code smell "unclear variable name". You might use the refactoring technique "rename function" to give it a clearer name, like "formatName()" instead of "fmt()".

TIE BACK TO CBT

Code smells are a lot like cognitive distortions - you may get a sense that something is a cognitive distortion even if you have trouble naming it.

NAMED CODE SMELLS AND REFACTORING TECHNIQUES

If you can name the code smell, that's even more helpful because you can talk about it with other folks and google it. You can give more concrete feedback during code review. Naming it is powerful, because it can help you counter it as well.

To read more about these named code smells and refactoring techniques, you might like the book "Refactoring" by Martin Fowler, or the website Sourcemaking.

FAQ / Other Points

When to let it through

There is some utility in declaring your unhappy state to others (and to yourself?) - conveying your current emotional state. It might be cathartic to express it, especially if there's nothing that can be done about it.

The goal here is not to ruminate. Let's look at the definition of rumination:

> Dwelling on the causes and consequences as opposed
> to the solutions

I could remind myself to angriness will go away when I eat, or that when I get there I can I can take my shoes off and dry my socks off. I'll feel awesome once my feet are dry. I'm literally soaked, everybody would understand. I probably wouldn't be the only one so wet!

This chapter covers the number one most useful thing I learned in "Intro to Psychology" - how to diffuse rumination by identifying and countering these maladaptive thought patterns.

Why doesn't everybody already do CBT

CBT takes time, energy, and skill.

Most people aren't aware this is a skill you can work on. Many people who are aware probably aren't sure how to develop it. Thankfully, you do now.

You'll be able to work on this gradually, but the rate at which you can work on this is limited. You don't have infinite time or energy. Try and celebrate each step in the right direction. It's a long journey.

More Resources

CBT Book

The book "Feeling Good: The New Mood Therapy" covers Cognitive Behavioral Therapy in depth. This is the book that popularized CBT, written by David Burns. This book is intended for you to use at home, even without a therapist. Many friends of mine have read this book, and they rave about it. It has changed many people's lives for the better. This book covers cognitive distortions very in-depth, with many vivid examples.

You can consider this "bibliotherapy", therapy via reading. The more motivated you are, the more likely bibliotherapy is to help. If you can also see a therapist, that support can make it significantly more likely you'll see improvements. If you have a therapist, they may even assign this book as supplemental homework.

LINK TO BOOK

Therapy

You can think of Cognitive Behavioral Therapy as "Training". Therapists happen to be skilled personal trainers for CBT. Seeing a therapist regularly is the best option for working on these skills, it is the approach most likely to succeed.

A therapist will determine how they can best help you, whether they make a formal diagnosis or not.

Many health insurance plans only cover a limited number of therapists that are frequently overbooked. If you can see one of these it may be the most cost effective approach. If not, many other places offer a sliding scale and there are other assistance programs available. If you believe therapy would help you, there's a way to get it.

Two of the most frequent diagnoses are depression and anxiety. Many folks have undiagnosed "mild depression" and "mild anxiety". Even these "mild" versions can still affect your life in very significant ways, and can benefit from developing skills like CBT.

CBT App

The web application Joyable helps with one particular issue, social anxiety. It is a great tool to help make sure you regularly work on your CBT homework, and give you some structure around it. It is cheaper than seeing a therapist, but just like the book approach seeing a therapist as well is more effective.

Joyable is great tool for social anxiety. I haven't yet found an app that helps with CBT more generally, but I really hope to see more things like this!

LINK TO JOYABLE

Meditation App

Meditation can help you... BENEFITS

There are many ways to get started with meditation - apps, videos, books, classes. For one concrete way to get started, I recommed

the app Headspace. Headspace is DESCRIBE HEADSPACE

LINK TO HEADSPACE

Regular Practice

Regardless of your approach, you'll have to regularly practice these skills to see progress. Brainstorm with yourself how to get yourself to regularly work on these skills. You might come up with some prompts (calendar event reminders? do it before/after something else?). You might pick one maladaptive thought pattern per week to look out for and work on, or you might set a goal of "whooping" yourself one per day. There are entire books on the psychology of habit formation. Make CBT skills a habit for yourself, however you are able.

Homework

ASSIGN HOMEWORK?

Chapter 2

Book Summary

Review One

Two debugging steps from earlier chapters:

1. When you feel yourself potentially downward spiraling, get into a mindful state. Whoop!
2. In a mindful state, listen to and describe your inputs: your automatic thoughts and feelings.

In this chapter we will cover two more steps:

1. Identfy any thoughts that are unrealistic or unproductive,

and name them.

2. For each unhelpful thought, think of an alternative thought that is more realistic and helpful.

Another Review

In the previous chapters, you learned how to CHAPTER1 then CHAPTER2 then CHAPTER3

Processing overview. You've covered 1 and 2 in the previous chapters, and we'll do 3 and 4 in this one.

1. Notice an opportunity to introspect. Whoop!
2. Describe your automatic thoughts and feelings.
3. Identify which thoughts are unhelpful.
4. Respond to the unhelpful thoughts with more helpful ones.

Third Review

Now you know how to get into the Whoop State. Once you're in there, you know what types of inputs to your system to think about. You know how to process your emotions better, and you can identify maladaptive thought patterns, replacing them with

more adaptive ones.

With all these put together, you can choose as a response that's more effective than what you might have done otherwise. You'll be more productive and happier. Any time you're about to hit a downward spiral, you can stop yourself and take control of your mind.

You are now a Mind Manipulator, of your own mind! You've finally figured out how to use the debugger for your brain. Now you can debug this "software" that's been running nonstop your whole life. You have so much potential, and so much power :)