ULTRALEARNING
MANIFESTO
by Scott Young

7 Must-Know Strategies
TO LEARN ANYTHING FASTER

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WHY ULTRALEARNING?

Learning is the foundation for success in nearly every aspect of life.

First you start in school.

Clearly learning matters here – learning well allows you to get good grades, get accepted to the best schools and graduate without the grind. Then you start work. Learning becomes a path to improvement – it gives you valuable skills so you can be a leader instead of just another cog in the system.

Learning matters for your health.

You need to learn what to eat, how to work out and how to maintain good habits. Learning matters for your relationships. Learning how people are, the best way to build connections and deepen them. Learning defines how you see yourself in the world, your sense of purpose in life and meaning.

Given that learning underlies so much of life, why not start with learning how to learn better?

Ultralearning is my approach to learning things well.

There's no one exact method for ultralearning, but there are some common principles amongst all ultralearners:

1. ***Self-education.*** Even if you're in school, a self-education mindset puts you in the driver's seat, controlling how and

what you learn. Ultralearners don't passively absorb education, they create it.

2. **Deep focus.** Ultralearning isn't a passive task. It demands hard, intense focus. The rewards for this effort, however, are large and it allows ultralearners to quickly develop skills that other people spend years unable to get a grasp on.

3. **Scientifically informed.** Ultralearners don't treat learning as a mystery. Instead, they use the best available understanding of the science of memory and skill-aquisition to use an approach that makes learning anything a step-by-step process.

Ultralearning takes many forms, and the best way to recognize it is to first see some examples, so I'll start by sharing my ultralearning projects, then move to explaining how you can start your own.

MY PROJECTS

Over the years, I've worked on multiple ultralearning projects. Chances are you're reading this well after I wrote this book, in which case I've probably completed new projects since writing this book. Each is different, but there are strategies common to all of them.

THE MIT CHALLENGE

Books read to complete the MIT Challenge

This project was to learn MIT's 4-year computer science undergrad degree in 12 months, by passing the final exams and doing the programming projects. It often meant learning a full-semester class like calculus or linear algebra in as little as five days.

TECHNIQUES USED:

1. ***Watching lectures at 1.5x-2x the speed*** with VLC player.

2. ***Practice triage.*** Focus on the hardest problems first, rather than an even coverage. Check solutions after each problem to gain feedback faster.

3. ***Use the Feynman Technique*** to break down difficult con-
   cepts quickly.

For more information, my TEDx Talk on the project and addi-
tional techniques, see the project page here.

TEDx talk on the MIT Challenge

THE YEAR WITHOUT ENGLISH

Speaking Chinese (Mandarin)

This project was to learn four languages in one year, travelling to Spain, Brazil, China and Korea to learn Spanish, Portuguese, Mandarin and Korean. The main method: **Don't speak English!**

I didn't do this project alone, and was accompanied by Vat Jaiswal, who also learned the languages.

TECHNIQUES USED:

1. *Aim for total immersion.* Only speak the language you're learning, even with your travelling companions.

2. *Use Spaced Repetition Systems* to build base vocabularies. Particularly useful for hard languages like Chinese and Korean.

3. ***Overlearn the basic words and phrases.*** The core vocabulary is the most useful, but most people stop practicing it after they've "learned it". Overlearning via immersion learns the language in a way that you'll never forget it.

For more information, our TEDx Talk on this project and additional techniques, see the project page here.

TEDx talk on The Year Without English
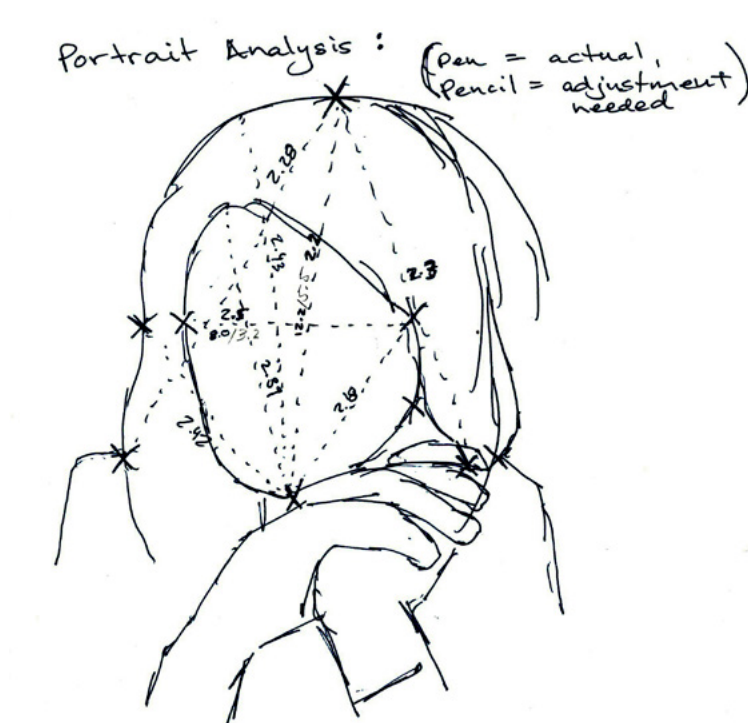
30-DAY PORTRAIT DRAWING CHALLENGE

This project was to see how much I could improve at drawing faces with just thirty days of practice.

TECHNIQUES USED:

1. ***Skill decomposition.*** I broke down the skill into components, such as properly positioning facial features, and then practiced rapidly via doing quick sketches.

2. ***Tight, accurate feedback.*** I would take photos of my sketches and overlay the reference photos to see exactly what mistakes I was making.

3. Metalearning. I searched for many different classes and methods, eventually finding specific techniques that could allow me to get greater accuracy.

To see all my sketches, drawings and short video explaining how I did it, check out the project page.

BEYOND...

It can sometimes be hard to see exactly what the principles I'm using are with only one project. After all, learning languages, math, drawing and neuroscience are all quite different.

However, I hope that by presenting different examples in very different domains, you can start to see some patterns emerge. These patterns in ultralearning you can use for your own projects.

Having seen these, I'd like to spend a little time discussing what I think the guiding principles are.

LEARNING PRINCIPLES THAT WORK

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Here are the basic principles of my ultralearning approach. These are the strategies that I keep coming back to, regardless of the particulars of the subject I'm trying to learn. Certainly there are more principles than these, and there are also more specific tools that work for learning particular subjects, however, I'd like to start by focusing on the main ideas so you can see how to improve your own learning approach.

LEARNING PRINCIPLE #1:
DESIGN YOUR PROJECT WELL...

One commonality amongst all my learning projects is that they are projects!

A good ultralearning project starts off with a well-designed plan. For that reason, I often spend nearly as much time thinking about the project as I actually do executing them. The reason for this is simple: many learners rush into learning endeavors that are ill-conceived, and when they inevitably encounter difficulties they get frustrated and give up.

HERE'S HOW TO DESIGN A GOOD ULTRALEARNING PROJECT:

1. ***Pick your constraints carefully.*** In each of my challenges, I carefully chose constraints that would limit what I was trying to learn or how I was going to learn it. These constraints make the project easier to work on because they eliminate all the possible distractions you could encounter.

2. ***Set aside enough time.*** Set aside clear chunks of time to work on your project and make them a priority. Ultralearning is worth the effort. But it doesn't work if you don't make it work.

3. ***Limit your materials and methods.*** It's easy to go overboard and try to learn everything. Pick a few key resources and a few key methods to start. Only once those fail should you think about branching out.

# LEARNING PRINCIPLE #2: TRAIN FOCUS AND PRODUCTIVITY

Once you design a project, you actually need to do it!

Being productive and knowing how to focus deeply are invaluable assets that enable you to get projects done. Ultralearning projects benefit particularly, because, by their nature, they tend to be hard to do and easy to give up on. By training productivity and focus you can go much further.

HERE'S HOW TO BECOME MORE PRODUCTIVE AND FOCUSED:

1. **Eliminate distractions.** Work without internet, cellphones, TV or distractions. If you need breaks, do something relaxing but not distracting like getting a glass of water, meditating or going for a walk. Don't turn on the TV because you're bored.

2. **Create a productivity system.** Schedule your time and work carefully. If you plan it out in advance, you'll rarely be in a situation where it's impossible to work on your project because of other priorities. If you don't schedule your day, then you'll always be playing catch-up.

3. **Progressively train your focus.** Don't start out trying to lift the world in a day. Start small and progressively build up. If you can only focus for 15 minutes at a time, aim for 20 minutes. As you get better, you'll be able to sustain concentration for longer without giving up.
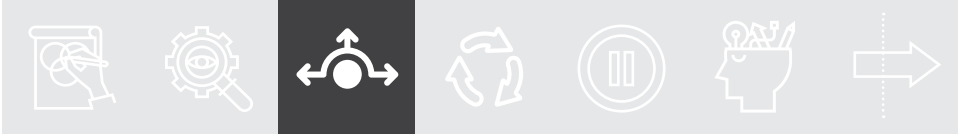
LEARNING PRINCIPLE #3:
LEARN ACTIVELY

When you're learning, what kinds of activities should you do to learn better?

There's a lot of subject-specific suggestions I could make, but a general rule is to learn in the most active way possible. Active learning means practicing the knowledge directly by using it in problems, answering questions or otherwise using skills.

The opposite of active learning is passive studying, which most students do. This is re-reading notes, skimming a textbook or passively listening in a classroom.

Some passive learning (attending lectures, reading assignments) is probably unavoidable. But I usually recommend trying to compress this as much as possible, to get to doing the real work of learning – practice – as quickly as possible. Only when you don't understand something does it make sense to go back and re-read notes.

LEARNING PRINCIPLE #4: QUICKER, DEEPER, MORE ACCURATE FEEDBACK CYCLES

A very useful concept from learning is a feedback cycle. This means applying your knowledge or skill, then getting information about where you can improve. In math, this might mean doing a problem, then seeing the solution. In languages, this might mean speaking to someone and then seeing whether they understood you. In drawing, this might mean doing a sketch, then seeing how well it matches what you were intending.

THERE ARE KNOBS YOU CAN DIAL UP IN YOUR FEEDBACK CYCLES TO ACCELERATE THE LEARNING PROCESS. THOSE ARE:

1. ***Do the cycles more quickly.*** Instead of waiting until the entire assignment is done to compare your work to the solution, why not do it after each question? Faster feedback is faster learning.

2. ***Do the cycles more deeply.*** The more elaborately you can practice, the more you'll test comprehensive skills. Doing a full project, therefore, can teach you things that doing flashcards won't. This principle sometimes pushes you in the opposite direction as #1, so I often will do two types of feedback cycles: long and deep plus quick and shallow.

3. ***Get more accurate feedback***. If you can improve the accuracy of your feedback, you'll need fewer cycles to make corrections. I did this in drawing by overlaying the reference photo on top of my sketches so I would know exactly what mistakes I made.

LEARNING PRINCIPLE #5:
SPACE YOUR PRACTICE OUT

What's better for learning outcomes? Study for five hours straight or five, one-hour chunks over two weeks?

The learning research is clear: spacing out your practice results in much stronger, longer memories than bunching it in one spot.

One way to apply this is to do frequent review testing on material you've already learned. By adding more practice over time, after you've first learned something, you can make those memories and knowledge last much longer.

LEARNING PRINCIPLE #6: PROCESS DEEPLY TO RETAIN MORE

Imagine you're running an experiment to see what methods cause people to remember words better from a list. One group you split them by motivation: you tell half of them there will be an important test later, so they'd better study, while the others you ask them to read a list, but don't tell them why. The second group you split by processing instructions. You tell one half to mentally note which words contain the letter "e". You tell the other half to note which words are pleasant or not.

Which condition, motivation or processing, do you expect matters more for memory?

Surprisingly the answer is overwhelming: it's processing that matters. Motivation doesn't actually do much at all for memory, but processing words more deeply (such as thinking about their pleasantness) caused participants to remember almost twice as much.

The conclusion: there's more than one way to absorb information. If you can do it by processing deeply (say by paraphrasing your notes, rather than writing them down verbatim; summarizing rather than highlighting while reading) you'll retain more.

LEARNING PRINCIPLE #7: OVERLEARNING

When you first start practicing a skill, you'll get better and better at it – for awhile. Then, you'll stop seeing much improvement. At this point, you've mastered the skill. Does that mean it's time to stop practicing and move onto something else?

Actually, when you continue to practice beyond what you need to perform a skill, this causes you to improve your ability to retain the skill. So the first phase of learning improves your ability, the second phase, what scientists call overlearning, causes you to remember the skill longer.

There are two ways you can use this. The first is to overlearn the most useful components of the skill you're practicing. If you're learning a language, you want to overlearn the most frequent parts of speech. If you're learning math, you want to overlearn common algebraic patterns.

The second is that if you want to maintain a skill for life, it's important to practice it beyond where you feel you're not seeing improvement anymore.

USING ULTRALEARNING

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How can you apply ultralearning to your own life? How can you use this to live better?

In this last section, I'll share the implications for becoming an ultralearner on your school, work and life.

ULTRALEARNING FOR SCHOOL

Ultralearning can be applied to the subjects you're studying. If you focus on learning them efficiently, you can focus on getting better grades or focus on getting the same grades with less stress and effort.

Even though ultralearning doesn't make studying easy, it will make it more efficient. By becoming more productive and eliminating wasteful activities from your learning, you can reach your full academic potential.

Once you start ultralearning, however, you might notice an additional change. Now that you've taken control over your learning, you might start to wonder what else you can learn? Why limit yourself to your classes? You can learn whatever interests you or whatever will improve your life the most.

ULTRALEARNING FOR CAREER

Once you're in your career, what's the point of ultralearning?

It's my belief that success in many professional fields depends on being very good at skills which matter. Although there are exceptions, this is broadly true simply because of a basic economic fact: people who are good at things can produce more value. People who produce more value have more bargaining leverage to get great jobs, salaries and projects.

If you think about it deeply, you can probably think of skills right now, that if you got exceptional at them, would be incredibly valuable for your career. Ultralearning is now a methodology you can apply to learn those things well.

ULTRALEARNING FOR LIFE

Ultralearning isn't just about getting grades or promotions. It's a philosophy that runs deep in allowing you to live a deeper, more meaningful existance.

Socrates famously said that, *"the unexamined life is not worth living."*

Learning more about how the world works, your place in it, your beliefs about life, philosophy or spirituality all contribute to your sense of purpose in the world. Ultralearning applies to these domains as well. Why not learn psychology – and understand yourself? Or the great philosophies and religions of the world to understand the meaning of life?

ULTRALEARNING MAY START OFF AS A TOOL TO LEARN BETTER. BUT ULTIMATELY, I THINK IT CAN OPEN DOORS THAT CAN COMPLETELY CHANGE YOUR LIFE. ALL YOU NEED TO DO IS TO START.