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Learning to Learn [Efficient Learning]: Zero to Mastery

The Principles

Key takeaway in 1 sentence: It's your choice to be an efficient self learner by shifting your mindset to be more optimistic about the path of learning to reach your goals.

PRINCIPLE: What is success?

Shift mindset to actual long term learning, rather than to conquer a system. Impressing a manager or getting good grades should not have been the main goal. It should have been understanding the lessons to benefit you in the long run.

PRINCIPLE: What is success?

Having drive and persistence. Being able to take risks and make mistakes.

PRINCIPLE: The Obstacle

You suck. When you don't succeed at first, keep pushing. You've found something worthwhile to learn, that others typically would turn away from after failing the first time.

PRINCIPLE: The Dip

Understand that you can have the motivation, drive, persistence to learn something and succeed, but that doesn't mean you will. The hardest part is knowing when to turn around and quit.

PRINCIPLE: Compound Learning

Making small learning sessions each day, rather than cramming it in one day. Focused learning. You don't work out for 8 hours in one day when you can split it into multiple days of work.

PRINCIPLE: Failures Don't Count

Each failure gets you closer to your goal. Failures don't count against you. People only remember you as you are in that one moment, but it doesn't represent you as a whole.

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PRINCIPLE: Choice vs Chore

Learning is a choice, and long term. If learning is considered a chore, it is temporary and you won't do it consistently or enthusiastically.

PRINCIPLE: It's All In The Frame

Changing, reframing our mindset, focus, perspective into what you can control, rather than what you don't have control over. Rather than "I'm not good enough", it's "I'm not there yet".

PRINCIPLE: Pareto Principle

80/20 rule. 80% of sales comes from 20% of clients. 80% of code comes from 20% of the programmer. Figuring out what are the most critical skills to have to get the biggest results? What is the 20% needed to get to 80% of the results? Is this the best use of my time?

PRINCIPLE: Skill Stacking

Mastery by Robert Greene.
3 approaches to career strategy.

1. Curiosity
2. Value Learning
3. Gathering skills and combining them (skill stacking) to be unique to you.
    a. What makes you stand out, one of a kind?

PRINCIPLE: Happiness Factors

What are the things in your daily life that make you happy? You are at a disadvantage if you are learning while not happy. Meeting these happiness factors positions yourself in a better state of learning.

1. Running
2. Video Games
3. Friends/Family
4. Food
5. Clean (Environment, Clothes)

PRINCIPLE: Your Productivity Time

Figure out when you are most productive in the day. [Me: Most likely morning].

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PRINCIPLE: Self Learning Paradigm

Personal autonomy. To be an efficient self learner, it’s your choice to take that path.

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The Lies

Key takeaway in 1 sentence: These lies aren't the rules that will dictate my learning.

LIE: Follow Your Passion

Following your passion doesn't mean you will be successful. Learn to enjoy the process of learning, which will turn into passion.

Creativity, Control, Impact - Combined together will create passion for something.

Craftman's mindset - Instead of following passion, work hard, learn a valuable skill, combine skills, and be good at it.

So Good They Can't Ignore You by Cal Newport

LIE: You Can Avoid Risk

Be able to tolerate risks. Stretching your boundaries. Doing something others aren't willing to do.

LIE: Trust This One Person

Form differing opinions and methods that are unique to you. When following the advice of one person, you are getting things that made them successful, but it might not be the way for you. It's important to learn from others to come up with something that will work best for you.

LIE: 10,000 Hours Rule

Practice is important, but the fact 10,000 hours makes you an expert doesn't work for everyone. It's a bad assumption to think everyone starts at the same place. Your life, personality, friends, family, upbringing, all can be factors as to how you learn and become better at something. These can be factors out of our control, BUT, there are factors we CAN control.

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The Pillars

Key takeaway in 1 sentence: The pillars focus on incremental learning at the base, to build fundamentals to in a topic to become experts in it over time.

PILLAR: Everything Is A Game

Growth mindset is the belief intelligence is trainable. Fixed mindset is that intelligence is a fixed trait; Born smart, genetic. Those are the ones who make excuses.

Locus of control - To what degree do people believe they have control over events or outcomes in their life?

“I’m not smart enough to do this” changes to “I’m not smart enough to do this, yet.”

PILLAR: Feynman Technique

If you want to understand something well, you need to be able to teach it. To explain it in a simple way. Bring a concept to its basic level.

PILLAR: Trunk Based Knowledge

In order to be efficient learners, we must start at the root, before we get to the leaves. Start with the fundamentals, the principles of a subject. Be able to answer “Why”? We build the skills we can still use in 10 years, rather than run stale.

PILLAR: Efficiency Trumps Grit

Being smart with your time is important for efficient learning. Using the correct methods. It’s not about the volume or being the hardest worker.

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The Science

Key takeaway in 1 sentence: Breaking your learning into smaller, meaningful pieces that you can practice over the course of several days can improve your learning and memory.

SCIENCE: Focus vs Diffuse Mode

Learning How to Learn by Barbara Oakley
Deep Work by Cal Newport

2 states the brain can be in: focus and diffuse mode.

Focus mode is where brain power and attention goes to one activity.

Diffuse mode is when the brain is thinking of different things.

Jumping back and forth from focused and diffuse mode can create efficient learning.

Studying a little bit every day is better than cramming everything in one session. Multi-tasking can make you less efficient. “Dual-task interference”.

SCIENCE: The Science Of Sleep

Why We Sleep by Matthew Walker

Being awake creates toxic products in our brain. Brain cells shrink when sleeping, allowing fluids to flow through the brain, to “flush” out toxins built in between brain cells.

SCIENCE: Brain Training

Strengthen connections between neurons (connected via synapses) by exercising your mind. Practice creates strong connections. Physical exercise helps the brain by putting it in diffuse mode, relaxed, thinking of other things.

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SCIENCE: The Science of Feedback

Negative and positive feedback

If no one is telling you if you're doing something right or wrong, you're just going blindly.

Criticism is more effective for learning, since it's actionable. You know what to fix.

Positive feedback at the beginning is good because it gets you over obstacles of self-doubt.

SCIENCE: Procrastination

Tasks put off are influenced by emotions. Tasks make us feel bad, they're difficult.

Getting rid of procrastination is just about taking initiative and just doing the task. Have to be happy to avoid procrastination.

https://www.deprocrastination.co/blog/3-tricks-to-start-working-despite-not-feeling-like-it

SCIENCE: Short And Long Term Memory

Long term memory is stored all over our brain. Created by creating the memory and revisiting it over and over again. Practice and repeat.

Short term memory (working memory) involves the front part of the brain. Can hold 4 chunks of memory in short term memory. Harder to remember things in more than fours.

Want to be able to move short term memory to long term memory with repeated use.

SCIENCE: Active vs Passive Learning

Passive learning is learning by watching, listening.

Active learning is taking action. Practicing. Taking notes. Solving problems.

Repeating is less effective than recalling.

Put your knowledge to practice.

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SCIENCE: The Science of Motivation

Intrinsic motivation - motivation from the inside

External motivation - motivation from the outside (money, house, car)

Intrinsic motivation is important for efficient learning.

Drive: The Surprising Truth About What Motivates Us by Daniel Pink

Says 3 principles are needed to have drive.

1. Autonomy - Have control, work on things we want and what we can control
2. Mastery - Intrinsically motivated to be masters of a skill
3. Purpose - How does this benefit myself and others around me?

Overjustification effect - External incentive decreases intrinsic motivation to perform an activity

SCIENCE: Goals

Taking small steps to reach your goals will help you reach your larger goals and remove that fear of failure.

Don't make the goal too big.

Goals don't have to be big. You can make small, well defined goals.

S stands for: Specific
I want to land a web developer role focusing on React.

M stands for: Measurable
Start with the fundamentals, then more advanced topics of React, build the portfolio, apply for jobs. At least 20 minutes per day focusing on the steps needed to get to the job interview process.

A stands for: Attainable
This is doable with the right commitment to the steps needed to land the role. I don't see this as far reaching. The limitations are the ones set by myself, either procrastinating, feeling discouraged reading a job description, etc.

R stands for: Relevant
Learning the skills needed to land a role like this will potentially earn me higher pay, a chance for a new work environment to collaborate with new people and aligns with plans in life to own a home.

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T stands for: Time bound
I'd like to achieve getting a new role by end of 2020.

SCIENCE: It Pays Not To Be Busy

Being busy shows you have a lack of time management. Having the time to pause and relax is better for your brain.

SCIENCE: Chunking

When you focus on something, you're creating chunks of knowledge, neuro-patterns and combining them with existing neuro-patterns. Understand how chunks in your brain relate to one another.

SCIENCE: How To Solve Problems

1. In focus mode, to solve problems that are sequential.
2. In diffuse mode, to solve problems by intuition, with ideas.

SCIENCE: Deliberate Practice

Peak by Anders Ericsson

The learning process is tough. We want to be at a level of frustration, at the edge of our limit to try and break through and continue rapid learning until you reach your limit again, and repeat.

To have deliberate practice, you need:
1. Specific goals
2. Intense focus
3. Immediate feedback
4. Frequent discomfort by being at the edge of abilities.

Deliberate practice is not meant to be fun. It's outside your comfort zone.

SCIENCE: Spaced Repetition

Repeating things after a few days is beneficial to improving memory.

Try to not spend so much time in one sitting, but space them over time.

https://ncase.me/remember/

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SCIENCE: Habits As Energy Savers

Formed to not be as focused while working on a certain task.

SCIENCE: Be Adventurous

We remember things better when we're in an adventurous state, emotions are heightened, experiencing something new.

SCIENCE: Have An Endpoint

Know there is an end in sight when working on something. Plan it accordingly. We all have different points of productivity during the day.

SCIENCE: Be Bored

Lack of boredom is bad for us? Being bored allows diffuse mode to be active.

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The Techniques

Key takeaway in 1 sentence: FOCUS with NO INTERRUPTIONS to get the most out of your critical learning.

TECHNIQUE: Pomodoro Technique

25 minutes on (no interruption), 5 minutes off

TECHNIQUE: Chunk the Subject

2 parts

1. Breaking topics into condensed pieces of learning.
2. Divide and conquer.
    a. Brain can only hold 4 chunks of knowledge at a time.

TECHNIQUE: Spaced Repetition Revisited

Forgetting curve - how quickly memory retention declines over time.

Cramming is not efficient learning.

Learning is done best by practicing topics over a set period of time, rather than in one session.

TECHNIQUE: Deliberate Practice Revisited

Intentionally doing the hard stuff. Working hard, working smart. Avoid the easy stuff, take on challenging projects.

1. When is my focus time?
2. Have I done this before? What's +1?
    a. How to be better at what you've done yesterday.
    b. Pushing yourself beyond your limits, be uncomfortable.
3. Will I get immediate feedback?
    a. How do I know if what I'm doing is correct or wrong?
4. Write it down.
    a. Track your progress.

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TECHNIQUE: Create A Roadmap

Know what path you want to take to get you where you want to be. Just learning chunks without a plan doesn't allow you to know how to apply the knowledge you have to solve problems.

TECHNIQUE: Interleaving

Make It Stick

Use different problems & sessions to learn something. Variety is important. Mix up learning by using different techniques.

When coding in JavaScript, functions for example, build them in the most common way, then convert to ES6 using arrow functions. It allows you to interpret code in different generations of coding styles.

TECHNIQUE: Einstellung

The idea the brain develops in a way to mechanize the state of the mind. Rigid mindset. Unable to see new ideas. Can't achieve new heights if you're unable to accept new ideas from other sources. Believing you're a master and that your way is the only way.

How do we solve this problem?
Integrative complexity - Idea of willingness to accept multiple perspectives and integrate them into a more coherent picture.

"What is Option C?"

"Strong opinions are often hiding insecurities"

TECHNIQUE: Importance of Community

Without a group of fellow learners, puts you at a disadvantage.

Why is community important?

1. Checks your blind spots. Learn things that you wouldn't have been able to find out alone.
2. Immediate feedback. Know what you're doing right or wrong and to improve and correct.
3. Have accountability.

TECHNIQUE: Habits Revisited

The Power of Habit by Charles Duhigg

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How to form a habit:

1. Cue - Something that puts you in a “zombie mode”, not requiring thinking.
2. Routine - What your brain does to respond to the cue.
3. Reward - Every habit should give us something that feels good.
4. Belief - Believe in the habit, that it’s good for you.

Willpower is not ideal to achieving goals. It forces you to do something

Atomic Habits by James Clear

4 Laws of Behavior Change: If these aren’t met, you can’t change/build habits.

1. Is there a clear goal to accomplish?
2. Is it as easy as possible to form this habit?
3. Is the habit attractive? Does the outcome make us feel good?
4. Does this habit reward us?

“Don’t break the chain” - Keeping working everyday to form a habit.

TECHNIQUE: System vs Goals

Systems better than goals?

How to Fail at Almost Everything and Still Win Big: Kind of the Story of My Life by Scott Adams

Success = Luck x Skills you obtain

Easier to procrastinate focusing on a goal since it’s harder to obtain. Systems are easier to focus.

Goals are good for the short-term, but systems are good for the long term. Don’t make a goal too big.

TECHNIQUE: The Power Of The Sense

Metaphors, analogies, visualizations, stories, are important because we use the mind’s eyes. We imagine things in our brain to make sense of them.

Forming strong neural connections in your brain is done by invoking as many senses as possible. Helps you remember things better.

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TECHNIQUE: Method of Loci

Memory palettes method - Associating things with certain images, building a storyline to remember things better.

TECHNIQUE: Pareto Principle Revisited

The 80/20 rule. Determine what are the most critical skills to learn in order to get the most out of the results. Just as important to select what to learn as to remove what to learn. Are you using your time efficiently learning the things that are most critical/important to your learning/goals?

https://mostcommonwords.co/

TECHNIQUE: Parkinson's Law

"Work expands as to fill the time available for its completion"

Finish something based on how much time you're given. If something requires minimal effort, you tend to complete it closer to your deadline. Leads to procrastination. How to make use of the time you're given (Pomodoro technique).

TECHNIQUE: Stakes And Rewards

Focus on small rewards. It feels good to do good. Learning has to give us something back. What are you putting on the line by learning? What is your drive? Stakes are what we lose by not learning.

TECHNIQUE: Concepts vs Facts

Concepts are more important than facts. Facts are things we can just Google. Concepts are harder to Google. Recognition vs Recollection. Recall is important for learning. Concepts are valuable. Facts are cheap. Concepts are higher level topics, which help your understanding of the topic in question.

TECHNIQUE: Test Yourself

Without practice, you will not get anywhere.