Study effectively

Learning Objectives

After completing this unit, you'll be able to:

- distinguish different strategies and experiment with them
- practice the infinite game in learning
- deal more effectively with procrastination

There is no one-size-fits-all approach when learning how to study effectively. Studying methods should be tailored to each student. Everyone has different abilities, so it is important to determine what works for you and what doesn't. Experiment with as many different strategies as possible and find out which study techniques will work best for you.

For some students, studying and staying motivated comes easily — others may have to work a little bit harder.

In this unit, we will discuss two aspects of studying that we all have to deal with: how to study (with effective learning strategies) and how to start studying (and dealing with procrastination).

Learning strategies: which are effective?

Learning new skills often means that you have to process information and acquire new knowledge. Everyone has developed one or more strategies over the years to remember, understand, and apply new information. Of this large group of learning strategies, six have been identified by cognitive psychologists that have the most evidence to support their effectiveness in improving learning. These 6 strategies for effective learning are spacing, retrieval practice, elaboration, interleaving, concrete examples, and dual coding. The table below briefly describes the strategies and provides an application example.

Learning Strategy	Description	Application Examples
Spaced practice	Creating a study schedule that spreads study activities out over time.	Students can block off time to study for 30 minutes each day, rather than only studying right before a test or exam.
Retrieval practice	Bringing learned information to mind from long-term memory.	Students can take practice tests to engage in retrieval practice. When learning about the attack on Pearl Harbor, students can practice writing out everything they can remember from the world climate that led to the attack, to sequence of events on the day of the attack, to the aftermath.
Interleaving	Creating a study schedule that mixes different kinds of problems, or different content subjects within one study session.	Students can alternate among subjects during a single study period, rather than focusing on only one subject at a time. For example, when studying statistics, students might practice when to calculate a t-test and when to calculate an ANOVA.
Elaboration	Specifically elaborative interrogation: Asking and explaining why things work.	When learning about physics and flight, students can ask questions such as: why does the plane need an engine? Why do the wings have a curved upper surface and a flat lower surface? Then, explain the answers.
Concrete examples	When studying abstract concepts, illustrating them with specific real-life examples.	Students can imagine the following example to explain the principle of scarcity in economics: When one tries to buy tickets for a flight a few months before the flight, ticket prices are reasonable. But as tickets are sold and the flight gets closer, tickets become more scarce, and thus more expensive.
Dual coding	Combining visuals with words.	When learning about neural communication, students can draw two neurons and verbally explain how one communicates with the other via the synaptic gap.

Source: the learning scientist

- Video - In a presentation for the *University of the Netherlands*, Gino Camp explains why we overestimate ourselves in what we have learned and how we can learn more effectively.

Playing the learning game differently

When we are involved in educational or other activities related to our personal and professional development, we are concerned with shaping our future self.

So when you set goals, you make plans for your future self. Conscious learning, for example in the form of following a training course or e-course module, is steeped in wishes, intentions, and goals. All focused on your future

self. This is a good thing. Without this long-term focus and our appreciation for efforts that yield returns not now but years later, we would still be at the mercy of our tendency to value immediate rewards more than future rewards.

However, the combination of learning new things and getting started with mid-term or long-term goals is the ideal breeding ground for self-doubts and uncertainty. It can itself cause us to procrastinate (again) or even throw in the towel.

Because when we learn new things we are confronted with our incompetence. Mastering skills, especially when it comes to complex skills, takes time and considerable effort. This awareness of incompetence (I can't do it) in combination with postponed rewards (landing a job after graduation) often leads to doubts about the feasibility of the mission and doubts about ourselves.

Consciously incompetent + long term benefits = risk of self-doubt

Learning communities offer a solution (of many) to the risk of self-doubt and thus, prevent procrastination or inactivity. In the presence of our peers, we can choose to relate differently to tasks at hand.

We can play the game differently. Giving attention to experimenting instead of achieving, challenging each other instead of beating your peers, attention to questioning instead of knowing. In short, learning communities offer us the opportunity to play the game with others without wanting to win it. To learn together and find pleasure in it without losing sight of our goals.

Examples of strategies to support playing this infinite (and more playful) game in the context of a learning community are:

- establishing a reward system
- peer-reviewing of code/assignments
- fun competition between peer groups
- set common learning goals
- switching roles between teaching coaches and participants

More about the game theory and finite and infinite games:

- The Finite and Infinite Games of Leadership Simon Sinek
- Finite vs. Infinite Goals by Simon Sinek

Dealing with procrastination

Procrastination is a well-known enemy of productivity and growth in general. As James Clear stated in "Procrastination: A Scientific Guide on How to Stop Procrastinating" procrastination is the act of delaying or postponing a task or set of tasks. So, whether you refer to it as procrastination or something else, it is the force that prevents you from following through on what you set out to do.

In this same article Clear explains how you can reduce procrastination by making the future consequences become present consequences. But before we go into this in more detail, we first consider a not insignificant false conception of the concept of procrastination.

Procrastination is not laziness or a unique flaw in our character. Procrastination is a (learned) coping mechanism that has many causes. Depending on who you ask or which study you refer to, the emphasis will be on thinking errors (I have to be motivated to start a task), negative associations and emotions (what if I do it wrong) or disorders such as depression or (I'm not going to succeed anyway).

How to deal with procrastination? As stated earlier, our brain values immediate rewards more highly than long-term rewards.

For instance, you're given a week to finish a coding assignment. You plan to start a day after receiving the assignment. But other tasks are given priority and instead of starting, you postpone it one more day. Now you start to feel worried. Are you going to manage to finish the assignment on time? Concerns rise as the deadline approaches. And then procrastination shifts into action and under the pressure of the deadline (short term benefit). You finally get to work on the assignment.

James Clear discusses in "Procrastination: A Scientific Guide on How to Stop Procrastinating" some strategies to deal with procrastination. The hallmark of his suggestions is that none of these are a direct attack on your procrastination. Stop procrastinating by telling yourself to stop procrastinating is counterproductive. At best, it will disappoint you, and at worst, it will reinforce your self-doubt. Clear's strategies focus on the rewards of action, the consequences of procrastination, and adjusting your environment. In short the three strategies:

- Make the rewards of taking action more immediate

Combine things you enjoy doing with activities you procrastinate. For instance, Hang up the laundry while listening to your favorite podcast

- Make the consequences of procrastination more immediate.

For instance, denying yourself a night out if you didn't complete the assignment

- Design Your Future Actions

This could be about tidying up your study or living room before you start working from home or take self-prepared lunch to work to avoid time-consuming lunch with colleagues.