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VADEMECUM

# The MIND'S Laboratory

*How to study  
effectively at university*



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# Introduction

Dear student,

we have developed this Handbook to help you study at university. You can read it and **consider** the qualities and resources you already possess so as to improve them and make an effective use of them in the course of your academic life. Furthermore, the Handbook gives you an opportunity to discover new study techniques and strategies that we hope will aid in making your learning process more pleasant.

It contains both practical sections and theory boxes. Each practical section will start with a preliminary activity which you can use to test your skills and activate your prior knowledge. The **theory boxes** provide information that can help you understand more about the brain, that wonderful organ! It is essential to understand the way it works in order to fully exploit its potential and study more effectively. Don't waste this opportunity!

Let us begin by looking at how two first year university students start off on their adventure.

*It's day one at university, **Marta** is an only child and the first in her family to undertake university studies. She meets **Giulio** who is the last of 5 siblings, two of whom have already graduated while the other two are attending university abroad. Marta and Giulio both look a bit apprehensive and lost. Marta has no idea where to start from as she looks around trying to find her bearings. Giulio instead is acting cocky, his brothers have told him what to expect but deep down he too is feeling somewhat intimidated and is wondering whether he will measure up to their standards. The two of them exchange mobile phone numbers.*

*That evening, Marta and Giulio chat on WhatsApp exchanging the following messages.*

**Marta:** Hi!! 😊

**Giulio:** Hi Marta!!

**Marta:** What do you think, is following lectures, studying and then taking exams going to be hard at this university?

**Giulio:** I plan on contacting professors to ask them which chapters we need to study and that's what I'll study. Usually that's all it takes to get through exams.

**Marta:** Really?!? Of course I want to study to pass exams but I also really want to understand how what I'm studying is going to help me become a magistrate.

**Giulio:** Hey.. just stay focused on exams for the time being!! You'll need 300 credits and a good grade-point average to graduate ... and you have to find out what each professor wants: that's what matters! What's the point of studying anything extra if the prof doesn't question you about it at the exam??

**Marta:** But if you study just for an exam, you'll forget everything you've learned the moment it's over.

**Giulio:** Look, you're going to have to take refresher courses anyway if you want to work, what you learn at university isn't going to be enough...so, for the time being, all I want is to pass my exams. My memory's pretty good and that's all I need.

**Marta:** I enjoy studying. I enjoy discovering new things, learning new skills and then putting them into practice. I can't wait! I'm only worried that I won't manage to keep up... at high school, I used to organise my study timetable, taking tests and processing information using mind maps or schemes.

**Giulio:** Hmm... why bother?!? I've always managed without too many sacrifices! If a topic was boring, I'd just drop it. I used to get my friends to give me their notes and I'd take a look at them before a test and with a nice presentation I'd usually manage to take in my teachers! I always got good grades!

**Marta:** How many hours a day did you study??

**Giulio:** No way, I didn't study every day! I only studied when I knew some oral or written test was coming up.

**Marta:** And that's your plan for university too??

**Giulio:** Sure! I've told you, my memory's good so all I need to do is go to classes and then study from the book or from someone's notes for a few days before the exam.

**Marta:** And you think you can get away with it on all subjects? When we were shown the syllabus today I got the impression it's all quite tough! I'd rather make a detailed plan so that I can handle my schedule and follow all the lectures. If I take notes, I'll learn from classroom explanations as well. And I'd like to study with someone else 'cause it would make things easier.

**Giulio:** You'll be wasting a lot of time!

**Marta:** That's not the way I see it! I think success comes from hard work and strong motivation. I'm telling you, I want to be a magistrate and I'm going to do everything I can to get there!

**Giulio:** Good luck!

**Marta:** With my studies, you mean!

**Giulio:** Ok, Ok, how about meeting for a drink somewhere tomorrow?

**Marta:** Sure, why not! Good idea! We can meet in the afternoon, once I've finished organising my notes from tomorrow morning's lecture! :) Bye!!!

Marta and Giulio are very different.

Marta seems to be determined to do her best, she wants to achieve her goals and, although she's somewhat apprehensive, she feels ready to learn new things, is confident about her abilities, knows herself, relies on others, is good at organising her time and keeping the commitments she sets for herself. She believes her success will be based on hard work and commitment.

Giulio, instead, relies on his memory and believes that all that university study involves is answering professors' questions. To him, all that matters is passing exams and getting the credits he needs to graduate.

Marta says she pays attention during lectures and uses conceptual maps to process information, she'd like to study in a group and check her notes every day. Giulio tends to rely on someone else taking notes, he doesn't attend lectures, improvises and studies only a few days before exams trying to meet teachers' expectations.

### WHAT VARIABLES AFFECT STUDENTS' SUCCESS?

1. the **students' personal characteristics**, sensitivity, prior knowledge, attentional abilities, motivation;
2. the **type of text** they are required to study, its content, structure, vocabulary;
3. their **method for processing** information, decoding and recalling knowledge;
4. the **physical environment** in which they study **and their relationships** with others.

Successful students are aware of these variables and are good at handling them.

Marta and Giulio have different views of studying and of themselves, different motivations and a different awareness of their own abilities.

Maybe reading Marta and Giulio's chat you couldn't identify with either of them, or maybe you found you had something in common. Of course, starting a new adventure at university isn't easy for anyone.

This is why we have drawn up this handbook where you can find information and tools that can help you start and do well in your university life! If you want to, you can attend a specific course where, through a practical laboratory, you can acquire useful learning techniques and strategies to improve your study skills.

#### THE BRAIN: A WONDERFUL MACHINE, THE SIZE OF YOUR FIST!

Clench your right fist, with your thumb inside against the palm of your hand. Observe your hand, your wrist might indicate the **brainstem**, while the thumb inside your fist indicates the **cerebral cortex** that is divided into two hemispheres, one on the right and the other on the left, ideally between your middle and ring fingers.

The **brainstem** is the region that connects the brain to the rest of your body. The **limbic system** enables us to feel our strongest emotions, to instantly handle dangerous situations, to automate procedures like brushing our teeth. This keeps us from involving the cerebral cortex, that is indispensable for all intentional actions. The **left hemisphere** allows

us to grasp details and is linked mainly to our rational, analytical, abstract thought and to verbal communication.

The **right hemisphere** allows us to grasp situations as a whole, to be creative, sensitive, understand non-verbal language and give emotional value of our words, but also to situations and sensory stimuli. The specialization of the two hemispheres is not clear-cut and predefined but depends on a number of factors. Furthermore the two hemispheres cooperate in many of our mental processes; in fact, the more we integrate their functions, the more the neural networks that develop will be complex and our way of thinking more flexible and open.



# 01. What do studying and learning mean?

To achieve good results, you need to reflect upon what you view as “**studying**” and what you feel is the most effective and pleasant way of doing it. Furthermore, have you asked yourself what “**learning**” means to you and how you think you can improve your results?

In the course of your school years, you have accumulated a great deal of experience and you have without doubt developed your own beliefs. For a deeper understanding, try performing the following activity.



Read the following definitions of the words “**studying**” and “**learning**” and mark the ones closest to the way you understand them.

Then, write down why you have chosen them rather than the alternatives.

- Studying is essentially an activity that involves **repeating a content to be learned so as to memorise every word.**
- Studying is a set of activities that a person copies in order to **redefine and organise the meaning of all the information and connect it to what he/she already knows.**
- Studying involves **reading and repeating the information provided in a book and doing the exercises required by teachers.**
- Studying is the procedure by which **content and skills are acquired and processed** using textbooks or digital tools, **to learn how to explain and use it all in context.**
- Learning is a process aimed at **creating meaning and integrating new knowledge and prior knowledge.**
- Learning is the result of a **reaction to the stimuli a person is exposed to.**
- Learning is a process based on the **acquisition of information.**
- Learning is a process involving **change that enables a person to grow and improve.**

*I feel that these definitions are the most exhaustive because...*

To me, LEARNING means...

To me, STUDYING means...

Did you find it difficult to question your thinking and reflect upon the meaning of learning and studying? You probably did, but we believe it has been a useful effort and reading this handbook you will understand why. There follow the definitions provided by experts.

The word **learn** comes from the Latin and it means to seize, grasp with the mind.

The learning process indicates a change in the way one thinks, feels and acts. Something is learnt when a person takes possession of something new that becomes a part of him/her making him/her different from what he or she was. We can all learn something at school and at home, while we are travelling or on holiday, consciously and unconsciously, in an informal or a formal environment. In particular, school learning is viewed as a process through which to build knowledge based on experience within a social environment (school, university); it is the result of the integration of new and prior knowledge that promotes a restructuring of one's mental representations; it requires social conceptual mediation (exchange of ideas with peers or with an adult) and generates a lasting change in the cerebral structure. People who study display their knowledge when they are able to explain, analyse, interpret what they have learned and apply it to contexts other than the school environment.

### WHAT GOES ON IN OUR BRAIN WHEN WE LEARN?

Our brain is made up of approximately 100 billion neurons and each of them presents about 100,000 connections with neighbouring neurons! So, it is made up of a thick network of neural connections that changes its shape in the course of our life thanks to what we learn from everyday life. Our brain preserves its plasticity through out our lives thanks to lifelong learning! When we receive new stimuli, the neural connections are modified and create new mental representations that change the way we think and act, and so we learn. **When we give meaning to what we are learning, the neural connections are strengthened and enable us to remember things for a longer time.** Anything that fails to interest us or is not meaningful or important to us is usually quickly forgotten. **Remember this when you are studying!**

**Study** indicates the procedure for formal and conscious learning that requires the use of techniques and strategies to acquire, process, remember and recall information and/or abilities with the aid of tools and resources (for instance: books, computers, the web, teachers, fellow students).

Sometimes studying is not viewed as a pleasant occupation, but only as a way of getting good marks or getting through to the next grade at school.

### WHAT MAKES STUDYING MORE EFFECTIVE AND PLEASANT?

- **Organisational skills**
- A positive feeling of **one's own effectiveness**, which means feeling able to succeed and not becoming discouraged over an initial defeat
- Feeling motivated by one's **will to succeed and not by final marks**
- **Being capable of reflection and awareness** in order to stay focused on what one is doing
- **Learning strategies and techniques**
- **Good skills in memorising information** and recalling it whenever necessary.

# 02. What are the study phases?

Targeted cognitive strategies and learning techniques can **help acquire greater autonomy in studying and enable you to be self-regulated** in a conscious, responsible and competent manner.



*If a publisher were to ask you to write a book on your study method, what title would you give the different chapters?*

1.

2.

3.

4.

This activity has the purpose of helping you creatively re-define your experience of studying acquired over the years. Re-defining and giving a name to the different phases in your study method is useful in giving it meaning, it can help you reflect upon how and what to improve and focus on yourself in order to increase your awareness of the processes you apply to studying.

Studying is a process that requires the use of strategies and techniques to acquire information, it means knowing how to process, store, remember and recall it at the right time.

To explain how to best manage the study process, we have felt it would be useful to break it down into **a few main phases**, that are in any case integrated and complementary to each other, i.e.:

1. **Pre-reading**
2. **Reading**
3. **Processing information**
4. **Presenting information**

#### THE ART OF CONSCIOUSNESS: META-COGNITIVE PROCESSES

Meta-cognitive processes enable us to act consciously in different situations, to “observe ourselves” **before, during and after** we perform some action, as if we were film directors and were imagining a scene, filming it and then watching the sequence of images to check their quality and see if something needs to be improved. So we can distinguish between processes, depending on the stages of conscious action. In studying:

- **Before you start to study (planning processes)** define a result you want to achieve and plan all the actions you intend to perform in order to accomplish your aims and the amount of time you wish to devote to them;
- **During study (monitoring processes)** check your progress, establish whether you are following the steps you had planned, whether you are becoming bored or enthusiastic, or even demoralised and find a way of proving matters;

- **After studying (scrutiny and verification processes)**, consider what you have achieved, whether you have actually reached your intended results or whether you need more time. Establish also what and how to improve, this will help you move towards success.

Meta-cognitive processes also affect emotional aspects. One can be aware of one’s feelings, emotions or physiological conditions before, during and after an action, but also when studying. People who act meta-cognitively have an incremental idea of intelligence, i.e. they believe they can transform it through constant work and improvement, they feel they have a skill they can choose whether to use or not, they consider their success or failure at a task as determined above all by their efforts (self-regulated learning). Meta-cognitive processes are essential but they require constant work and self-observation.

PHASE 1

PRE-READING



*Take one of your university books, choose a chapter you have never read and take five minutes to identify the main ideas.*

***What did you do in order to do this exercise?***

Maybe the task indicated in the activity surprised you. It has a specific aim: to help you understand that “taking a quick look” at a text before reading it properly is essential, let us find out why!

The phase that precedes proper reading is called pre-reading and can help you define the purpose of studying, call to mind the knowledge you already have on the subject you are studying, generate hypotheses and formulate questions as to the content itself, focus your attention and become personally involved.

All this helps you develop your interest and curiosity, in addition to supporting your motivation and concentration.

Some of the **learning techniques or strategies** that can be used in this phase involve:

**1.1. Activating prior knowledge**

**1.2 Asking yourself questions and generating hypotheses**

**1.3 Skimming**

## 1.1. ACTIVATING PRIOR KNOWLEDGE

Prior knowledge is information you have acquired in the past and that currently influences the way you see the world. It is represented in your memory and can be actively summoned to your level of consciousness.

Given that learning presupposes a link between new information and information/charts/procedures you have already acquired, prior knowledge influences the results of learning, given that it provides the basic knowledge (charts, vocabulary, concepts, etc.) on which to base newly learnt information. Activating prior knowledge is an essential strategy because it helps stimulate the neural networks associated with a given subject, and therefore prepares the brain for learning.

You have probably already experienced situations where you have a great deal of prior knowledge about the subject you have to study and it is consistent with new information and this makes studying easy and linear because you feel you already have a base on which to build new learning. However when new information differs greatly from your prior knowledge (and this can happen frequently during your first year at university), you could perceive a contrast, i.e. a cognitive conflict (or cognitive dissonance, see the box).

### WHEN CAN CONFLICT HELP YOU LEARN?

A cognitive conflict arises when a person perceives a discrepancy between his/her own ideas, beliefs and knowledge and a new subject or circumstance. Such a conflict drives a person to make adjustments, i.e. to alter and/or revise his/her own perceptions and beliefs so as to reduce, as far as possible, the dissonance. This means that when we experience cognitive dissonance, we start an active process to overcome the unease triggered by the discrepancy between what we believed and new discordant information. The greater the inconsistency, the greater the state of apprehension and the

stronger the motivation to reduce the dissonance.

For a student like you, it is very important to understand if and when you experience a cognitive conflict, given that learning could otherwise be hindered. Indeed, if you do not devote some time to activating your prior knowledge before tackling a new subject to establish whether your understanding is discordant with the new information, you might fail to open your mind and make it accessible for the construction of new knowledge. When, instead, you activate your prior knowledge, you will be able to revise and redefine your understanding and beliefs to align them with the subject you are about to study and therefore facilitate learning.



In conclusion, it is important to know that prior knowledge constitutes an important predictive indicator of student success. So, remember that activating it before you start studying can help you:

- call back to mind notions and abilities you have learned previously;
- create a larger number of links between concepts and make the subject more meaningful;
- assess whether you have sufficient basic knowledge to learn the new subject;
- address misunderstandings and prejudices by reducing cognitive dissonance;
- support interest, motivation and greater chances of success.

There are a few questions you can ask yourself to activate prior knowledge, for example: **“What do I already know about this subject?”**, **“What questions come to mind if I think about this subject?”**, **“Will I be different once I have learned this subject? In what way can it change me?”**, **“How would I define, in my own words, this subject?”**, **“What experience in my life does this subject bring to mind?”**, **“If I were to write 6 sentences on this subject, what would I write?”**, **“Is there a web site specifically dedicated to this subject?”**, **“If I were to use a drawing to represent this subject, what would I draw?”**, **“If I were to apply this subject to my life, how would I use it?”**

#### WHY SHOULD PRIOR KNOWLEDGE BE ACTIVATED? THE BRAIN MUST PREPARE TO LEARN!

Our brain needs to be "prepared" to accept new information, just as one must till and irrigate the soil before sowing so that the ground can receive the seeds.

Our brain is like dry soil where it is difficult to sow seeds when it has not been prepared for learning, therefore, it is essential to activate one's prior knowledge or develop hypotheses in relation to the subject about to be tackled or, even, asking questions for which one wants answers.

By these methods, it's as if we were "fertilising the soil", switching on the parts of the brain in charge of decoding

that kind of information. This facilitates and promotes a modification of neural networks and, hence, the transformation of our mental representations.

Furthermore, it has been found that the brain works better and remembers better when the parts responsible for movement are involved, so when one can also perform actions (but even imagine them or represent them graphically) before or during learning.

Before starting to study, you can use breathing techniques or do a few physical exercises or take a short walk to help the brain oxygenate and be ready to receive new knowledge. During study, you may find it useful to represent your knowledge by drawing it or even imagining a situation in which you could apply it.

## 1.2. ASKING ONESELF QUESTIONS AND FORMULATING HYPOTHESIS

Reflection, recognizing one’s emotions, formulating hypotheses and asking oneself questions about the subject to be studied activates the mind and prepares it for further learning.

Asking yourself questions and formulating hypotheses are strategies that can stimulate your curiosity and your interest, help you become more involved in studying and keep you from memorizing information passively. Furthermore, they promote meta-cognitive processes (see the box on meta-cognitive processes) because they drive you to become more deeply aware of your goals, of what you need to do to achieve them and of your feelings while studying.

Before you start studying, ask yourself a series of questions (inherent to yourself, the subject or your study plan) so as to activate your prior knowledge, learn about your feelings, plan the techniques and strategies you want to adopt to achieve your goal and make the purpose of studying explicit. To this end, you may find it useful to use a table like the one below:

Why do I want to learn this subject?	
What do I already know about this subject?	
What would I like to know (am curious) about this subject?	
How will I learn this subject?	
What do I feel right now?	

You can also formulate hypotheses about the subject you have to study. This way, you can make the reading and information processing phases more active and engrossing.

**Remember!** The more bizarre and original your hypothesis or the more strongly based on your beliefs, the more you will promote, in your mind, the cognitive conflict with new knowledge and, therefore, you will feel more active and more motivated to identify and understand the right knowledge.

### 1.3. SKIMMING

Skimming is a speed reading technique (to be applied before reading) that can help you understand the overall structure of a text and the lay-out of the main ideas as well as the connections between them. Furthermore, skimming can also be useful in defining the aims of reading, specifying concepts and words that are important for comprehension and assessing the difficulty and nature of the text.

This speed reading technique involves reading:

- titles (of chapters, paragraphs and then sub-paragraphs);
- the final questions in the text (if any);
- captions of images, tables, graphs and maps;
- foreword and conclusion;
- any words in bold/italics.

Skimming is an extremely flexible technique that is, however, very important. Indeed, once you have skimmed the text (even before reading it analytically) you will be able to: understand which information is fundamental, distinguish between essential information and details, create logical links between the main pieces of information and between them and secondary information, present your knowledge according to a schematic structure, identify information that could be relevant to the subject, build up a glossary of specific terms.

Mastering this information will make an analytical reading of the text faster, more pleasant and effective and will help you understand better and more meaningfully the notions you have to study.

**PHASE 2**  
**READING**

*At school, much of learning is mediated by reading books and documents. There are a few fundamental differences between good readers and mediocre readers.*



*Read the features that differentiate good readers from mediocre readers. Which of the two descriptions applies to you?*

**GOOD READERS**

**Before reading they:**

- Define the purpose of reading
- Plan the techniques and strategies they will use in studying
- Activate prior knowledge
- Are aware of their feelings
- Are able to motivate themselves so that they stay concentrated on the task at hand

**While reading they:**

- Concentrate fully on the task, neutralising all sources of distraction
- Use strategies and techniques to activate the mind as regards the organisation of the information perceived
- Constantly check their understanding
- Examine in depth, using other resources, anything they have not at first understood
- Stop only when they have reached a significant stage in their work

**After reading they:**

- Organise comprehension using techniques and strategies for processing and presenting information
- Assess the adequacy and completeness of their understanding of what they have read
- Consider whether they have achieved their purpose in reading
- Identify things they can improve next time

**MEDIOCRE READERS**

**Before reading they:**

- Start reading without first reflecting upon the text and the subject
- Do not indicate the purpose for which they intend to read
- Read without having planned the process of studying or the techniques or strategies they intend to use

**While reading they:**

- Rarely monitor their level of comprehension, i.e. check whether what their eyes perceive from the book is then organised by the mind in meaningful structures
- Use few or no reading strategies or techniques, they simply read the text from start to finish
- They little realise what processes are taking place

**After reading they:**

- Use few or no techniques and strategies to process and present the information they have read
- Make a superficial assessment of what they have done and, generally, rely on their “perception of having understood”

*Consider: what could you do to improve your reading?*



During the reading phase, it is very important for you to concentrate on the information itself so that you will be able to identify the important elements in the text, in addition to grasping the relationships and connections between the notions presented in it. These processes help readers fully understand the structure and meaning of what they are reading, in addition to helping them reflect upon the content.

A few of the techniques or strategies that can be used to improve reading skills are:

- **Underlining**
- **Taking Notes**
- **Writing summaries**

## 2.1. UNDERLINING

The word “underlining” literally means “tracing a line underneath”. This technique involves using a pen, a pencil or a colour to trace marks (lines, circles, symbols, etc.) next to a few words chosen because you consider them interesting or useful to your study.

The purpose of underlining is to highlight a few sentences in the text or to use symbols to underscore some of the reader’s thought processes. If underlining is done properly, in addition to speeding up the memorisation of information, it can be extremely helpful also during the re-reading process, when you analyse how much you have learned.

Underlining becomes all the more important when, before reading, you define a **legend**. It is instrumental not only to distinguishing the information in the text more clearly, but above all for meta-cognitive reading, in terms of reflecting upon the types of information you have identified (e.g. you can use pink for the main idea, blue for secondary ideas, green for examples, a pencil for segments that are less clear, a star for ideas to be linked to other subjects, etc.).

## 2.2. NOTE TAKING

Taking notes means writing down (at the margin of the text or on another sheet of paper) the ideas that you consider important, depending on your definition of the purpose of reading. Taking notes while reading will help you consider and organise the information you are reading about or listening to, according to a meaningful structure that makes sense to you. In addition to helping you understand, this technique will also stimulate your attention and generate a greater involvement when you read or listen.

There is no single way of taking notes because this is a technique which is used for many **different purposes**, for instance: to clearly indicate the connections between the information being read/heard, to note and clarify specific terms (vocabulary), to write down questions that can be answered when reading/listening, to extrapolate key words, to indicate clearly the writer/speaker's intentions, to further clarify the purpose of reading, etc.; to take useful notes it is important to grasp the main ideas, describe them and process them in your own words (= paraphrase).

Taking notes entails the use of different **processes**: recognising and collecting information, making decisions, organising, classifying and developing hierarchies as regards all that needs to be noted, recalled and remembered.

Notes can be taken in the **linear or graphic-spatial form**, such as for instance: writing, drawing, depicting, illustrating, listing, grouping, giving examples, asking questions, describing, developing hypotheses.

## 2.3. WRITING SUMMARIES

Writing summaries is a learning technique that can help you focus your attention on the important information in the text and re-formulate the main ideas in your own words. To write a good summary, first of all you must read and understand the text, then all the important information must be grouped, organised, structured and condensed according to the elements they have in common.

A summary, therefore, is an activity that involves organising and structuring the information in the text, re-formulating it in one's own words.

In making a summary, on the basis of the original text, readers tend to establish a hierarchy; discriminating between important information and information that is superfluous and unnecessary in terms of understanding the text.

A few essential points to be kept in mind to write a good summary are:

- **Skim the text** to be summarized to identify the structure and the main ideas;
- List the **key points**: drawing up a list of the essential notions makes the task much easier;
- **Combine the points that are connected** so as to create a single statement expressed in your own words;
- Draw a line in pencil across **less important or redundant points**;
- Read the list of statements you have produced in order to further **work on the sentences** or identify information that can be further condensed;
- **Number the remaining statements** according to a logical order;
- **Bring the numbered sentences together harmoniously**, according to the order you have defined;
- Read again to check that the final layout is **logical, consistent and comprehensive**.

#### MOTIVATION: WHAT DRIVES US TO LEARN?

Motivation to learn is considered a drive to take action through which individuals focus their attention and efforts on a number of activities aimed at acquiring and mastering knowledge and skills. Motivation has a very strong emotional component, the brain can distinguish where to direct its action depending, above all, on the emotional value of the direction itself. Motivation is extrinsic when one is driven to learn and persevere in a behaviour in order to obtain an advantage or a further benefit not strictly connected to learning (for instance: a good mark, a reward, one's parents' admiration, a car). While intrinsic motivation involves a resolve stemming from awareness of one's resources and a wish to use them to improve one's performance, from one's expectations of success and the extent to which they depend on one's own efforts and labour. Intrinsically motivated learning implies curiosity, exploration, spontaneity, interest in the topics being tackled,

freedom of choice rather than external imposition, even if it is within the framework of a structured pathway such as in the academic environment.

The more you are conscious of yourself, of the fact that you can choose and be successful in studying and that you are able to grasp the value and meaning of what you learn, the more your motivation to act will be intrinsic.

In practice, if you want to develop your intrinsic motivation:

- Define a goal (positive, specific, measurable, process-based);
- Identify specifically and in detail the results you wish to achieve upon completion of your activities;
- Choose freely (within the limits of what is actually possible) when and how to organise and manage your study plan;
- Make opportunities for yourself to expand on the subject referring to something that intrigues you (this will feed your emotional side and will help you memorise things better!).

**PHASE 3**  
**PROCESSING INFORMATION**

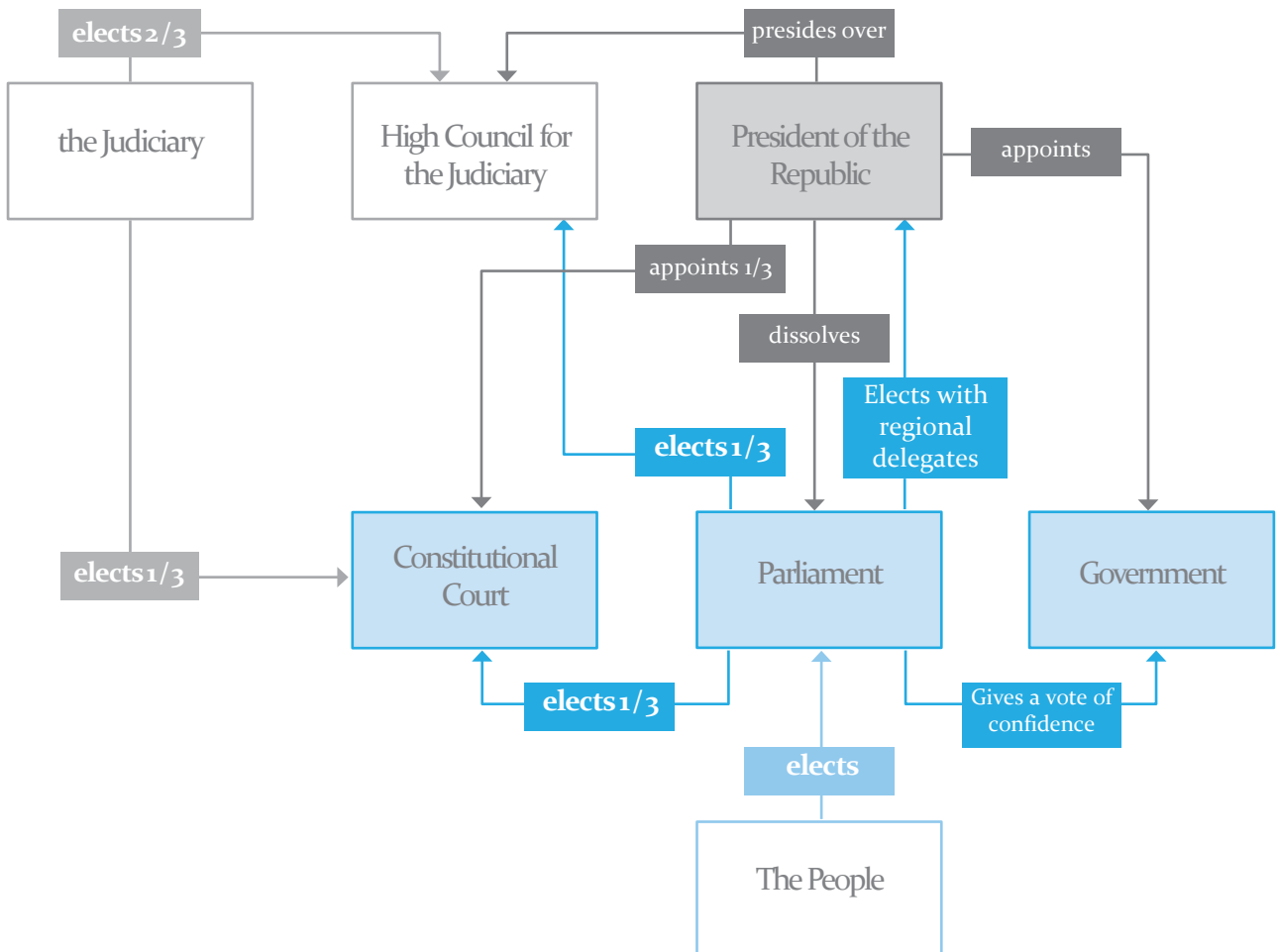


Compare these two ways of presenting information relating to the structure of the Italian State. Try to explain which of the two you consider most meaningful and easier to remember.

**Linear Representation**

- ✦ Chamber of Deputies
- ✦ Deputies
- ✦ Parliament
- ✦ Senate of the Republic
- ✦ Citizens
- ✦ Senators
- ✦ The Judiciary
- ✦ President of the Republic
- ✦ Government
- ✦ Constitutional Court
- ✦ Members of Parliament
- ✦ Ministers

**Spatial Representation**







*Reflecting upon the above activity, why do you think that connecting and organising information logically is useful when studying?*

The phase that involves processing information is fundamental in consolidating what you are studying and making it easier to recall. This phase, furthermore, facilitates the transition of information from short term to long term memory, because it enables you to organise the information to be learnt in structures that are meaningful to you and not necessarily dependent on the linear logic presented by the book (or by an oral explanation).

Processing information goes against the common tendency to study by “learning by heart”. Have you ever learnt something by heart? What do you now remember about that subject?

**WHY PROCESS INFORMATION? THE BRAIN LEARNS BY CREATING CONNECTIONS!!**

All human beings spontaneously tend to give meaning to the reality they live in. It is a feature of our brain that it is oriented towards survival and it can be managed according to a person’s purposes and goals. This is the reason why we find it easier to perceive and register familiar information that we consider more significant. When this happens, in terms of cerebral connections, concept networks are created. Such networks develop when prior knowledge is linked to new knowledge, when information is processed and takes on a specific meaning. **The more the network is made up of meaningful connections, built up by the learner, the longer will the information be remembered.** The degree of complexity of the cognitive operations we perform in developing

concept networks varies and affects memorisation and recall. **The broader the network and the more differentiated and interconnected the information** (visual, auditory, motor etc.), **the more the information will be remembered and easily called to mind so that it may be used in a given context.** The end goal of university study is to learn to use one’s acquired knowledge in a professional environment and in a future job! In practice: if you want to remember the knowledge you have acquired better and for a longer period, you could:

- Connect prior knowledge and new knowledge, creating conceptual nodes;
- Use processing tools and techniques that can be helpful in creating a mind map (see the “concept mapping” technique);
- Reflect upon the significance of this knowledge in the real world and try to understand how you can use it

**The words “information processing” refer to the processes aimed at ensuring comprehension of the materials being studied, and they involve:** thinking, structuring, reflecting, applying, consolidating, meditating, associating, understanding, integrating, analysing, connecting/linking, recalling, codifying, giving meaning, reviewing, organising, assessing, summarising, assimilating, listing, comparing, distinguishing, being aware, classifying, investigating, creating sequences, representing.

There are a number of techniques that support these processes, but it must be pointed out that each student has his/her own preferred methods for processing information, and they depend on his/her aptitude (cognitive style, intelligence structure, mindset, etc.).

Given that each individual learns in a different way, it is useful for students to have a broad repertory of processing strategies from which they can choose according to their preference, their goals, schedules, the content of the subjects they have to study and their method of verifying how much they have learned.

The following are a few learning techniques or strategies you can use in this study phase:

- **Graphic organizers**
- **6 Ws (Who? What? When? Where? Why? How?)**
- **Feature grids**

## **2.1. GRAPHIC ORGANIZERS**

Graphic organizers serve the purpose of presenting in graphic form the content to be learned and visualising the logical connections between words, sentences and main ideas, differentiating main and secondary notions.

Presenting information in visual-spatial form stimulates thought, reasoning and questions and makes deep comprehension of the subject easier.

**There are different type of graphic organizers, among which:**

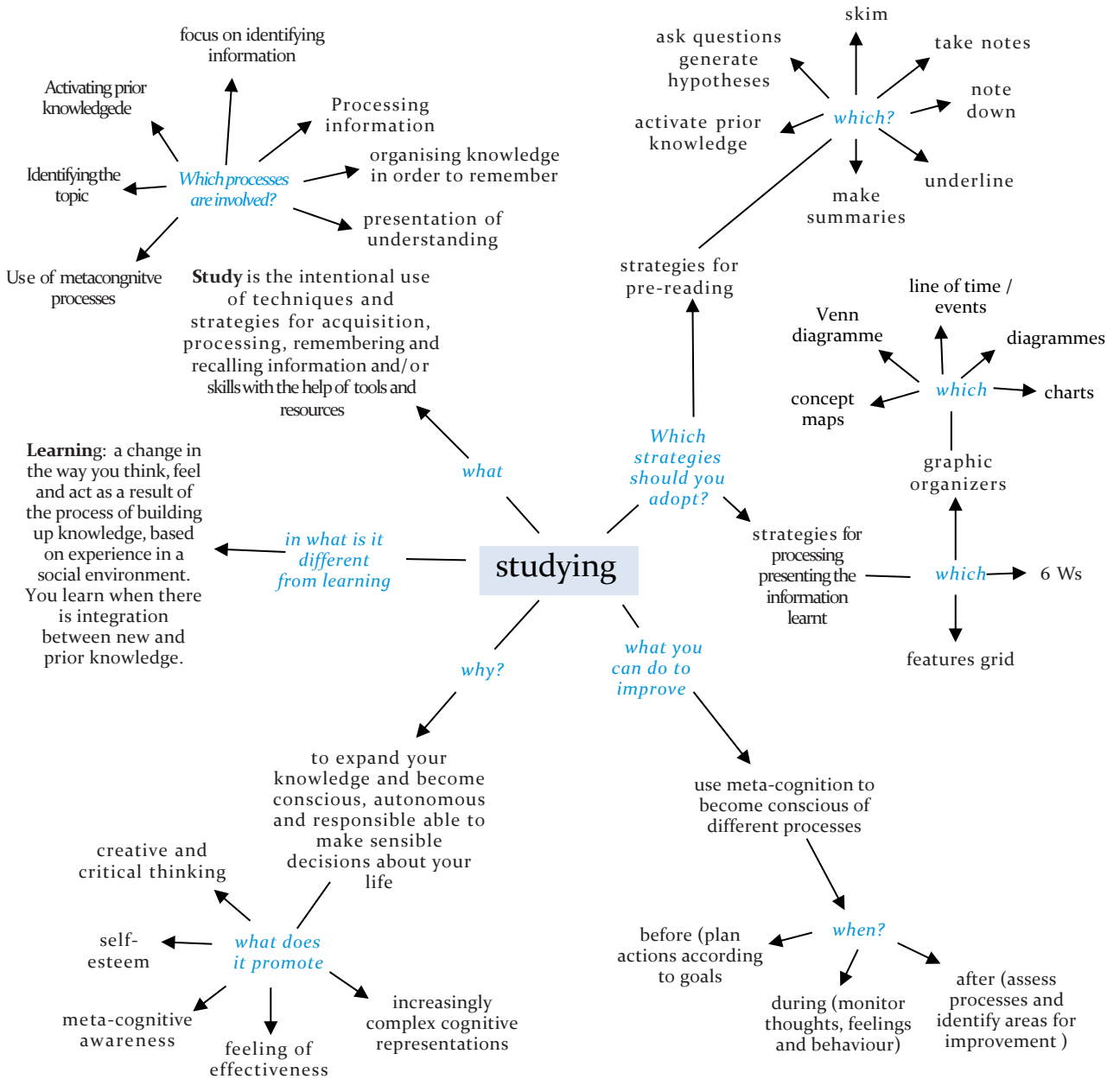
- **Venn diagrams:** to distinguish between or compare different notions;
- **Line of Time/Line of events:** to line up concepts in a sequence;
- **Fishbone diagrams:** to list the features of each single concept referred to a common subject;
- **Flow diagrams:** to organise concepts according to linear logic;
- **T Charts:** to study in depth and compare details of two main subjects;
- **Conceptual Maps:** to present the structure of the talk/text and the connections between concepts.

Generally, one solution is chosen over others depending on text structure (e.g. the information is presented according to a logic involving: cause and effect, before and after, etc.) or the purpose of reading (understanding the connections, discriminating and establishing relationships between concepts, highlighting a procedure, etc.).

Conceptual maps (or mental maps or semantic maps) present the advantage of synthesizing in a small space a great deal of information, highlighting the links between different parts of it.

In a **conceptual map**, the main idea is placed at the centre, subordinate ideas are positioned around it and linked to each other using arrows indicating questions (i.e. the link between different ideas). Additional ideas, details, specifications and other elements are further subordinated and presented as progressively more distant from the main idea at the heart of the map.

There follows an example:



### 3.2 THE 6 WS (WHO? WHAT? WHEN? WHERE? WHY? HOW?)

The 6 Ws are questions that can help you collect information and reorganize it in your own words. This technique drives students **to ask themselves questions**, to help them present the information in a written text and process it in a structure that is easier to remember. It is a technique that is particularly useful when the aim is to identify the most important information in a text, summarise it and organise it.

Questions can be organised according to a table like the one below at the end of which you are asked to summarise, paraphrasing all the information you have collected in your own words.

who?	what?	where?	when?	how?	why?

Synthesis:

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Should you wish to ask yourself questions that can stimulate more complex cognitive processes, you could:

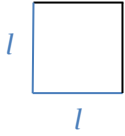
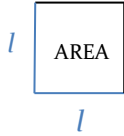
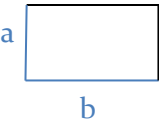
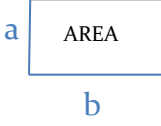
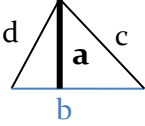
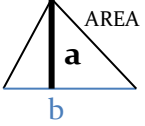
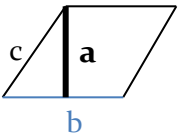
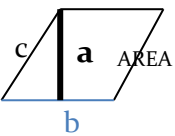
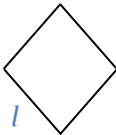
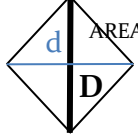
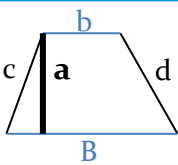
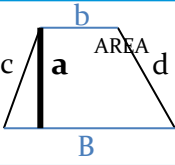
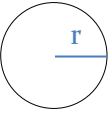
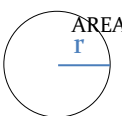
- facilitate information processing by asking questions like: What is the relationship between ...?; What could you infer from ...?; How would you define ...?; What do you think of ...?;
- apply the information to other contexts asking questions like: How do you think that ...?; If... what do you think could ...?; What do you imagine...?; What might be ...?; What would happen if ...?; Can you give an example of ...?;

### 3.3 FEATURES GRID

This technique, also known as a matrix, is extremely useful to compare information concerning subjects with common features. This table helps you compare the meaning of several terms and notions belonging to the same category or reference set and establish relationships between them on the basis of a series of features that are clearly defined. It is an extremely useful technique also for comparisons between terms and features belonging to a same category (e.g. literary genres, states of matter, theories referring to a same phenomenon, formulas, etc.), given that it enables you to grasp similarities and differences between notions very quickly.

Features grid facilitate comparisons and highlight similarities and differences between notions.

There follows an explanatory example<sup>3</sup>:

Figure	Perimeter	Perimeter Formula	Inverse Perimeter Formulas	Area	Area Formula	Inverse Area Formulas
Square		$p = 4 \cdot l$	$l = \frac{p}{4}$		$A = l \cdot l$ or $A = l^2$	$l = \sqrt{A}$
Rectangle		$p = 2 \cdot (a + b)$	$a = \frac{p}{2} - b$ $b = \frac{p}{2} - a$		$A = b \cdot a$	$a = \frac{A}{b}$ $b = \frac{A}{a}$
Triangle		$p = b + c + d$	$b = p - c - d$ $c = p - b - d$ $d = p - b - c$		$A = \frac{b \cdot a}{2}$	$a = \frac{2 \cdot A}{b}$ $b = \frac{2 \cdot A}{a}$
Parallelogram		$p = 2 \cdot (b + c)$	$c = \frac{p}{2} - b$ $b = \frac{p}{2} - c$		$A = b \cdot a$	$a = \frac{A}{b}$ $b = \frac{A}{a}$
Rhombus		$p = 4 \cdot l$	$l = \frac{p}{4}$		$A = \frac{D \cdot d}{2}$	$d = \frac{2 \cdot A}{D}$ $D = \frac{2 \cdot A}{d}$
Trapezoid		$p = B + b + c + d$	$B = p - b - c - d$ $b = p - B - c - d$ $c = p - B - b - d$ $d = p - B - b - c$		$A = \frac{(B + b) \cdot a}{2}$	$a = \frac{2 \cdot A}{B + b}$ $b = \frac{2 \cdot A}{a} - B$ $B = \frac{2 \cdot A}{a} - b$
Circle		$p = 2\pi \cdot r$ $p = 2 \cdot 3,14 \cdot r$ $p = 6,28 \cdot r$	$r = \frac{p}{2 \cdot \pi}$ $r = \frac{p}{6,28}$		$A = \pi \cdot r^2$ or $A = 3,14 \cdot r^2$	$r = \sqrt{\frac{A}{\pi}}$ $r = \sqrt{\frac{A}{3,14}}$

## PHASE 4

## WRITTEN AND ORAL PRESENTATION



*Think about a speaker you consider particularly skilled (e.g. a journalist, a professor, a presenter). What features, in your opinion, make his/her communication effective?*

1.

2.

3.

4.

5.

When you are studying, once you have read and organised the information, it is very important to check on the depth and breadth of the knowledge you have acquired; this can help you monitor your comprehension, improve it and consolidate it in your long term memory. You can present or illustrate what you have learned both in writing and orally.

If you want to check your level of comprehension after studying, a useful technique involves **making an oral presentation** of what you have learned. When using this technique, it is very important to assess the extent to which you have mastered different criteria, which include:

- **Content** - Mastering information and managing the ideas that are consistent and pertinent to the subject.
- **Processing** - Personal review of the content with possible connections to other disciplines, real life applications and examples.

- **Specific and natural language** - Use of the appropriate logical and grammatical structures (natural language), comprehensible speech and use of specific terms referring to the subject (specific language).
- **Presentation** - The manner of presenting content (e.g. organising your speech, presenting the structure, etc.), within a given timeframe and depending on the situation's requirements.
- **Contact with an interlocutor (if and when speaking to someone)** - Maintain eye contact, listen and respect the other person's speaking time, if necessary ask for clarification or further details.
- **Non verbal communication** - Facial expression, position, body movements, tone of voice, etc.
- **Ability to reflect** - Use of meta-cognitive processes that involve planning beforehand, monitoring during the process and checks and verification upon conclusion of the process.

To make their oral presentations increasingly effective, students may record and then listen to themselves, do a presentation in front of a mirror, ask a fellow student to listen.

During your time at university, you will often be required to show your level of comprehension through a written test, which often takes the form of a questionnaire. In these cases, it might be helpful to bear in mind a few useful suggestions:

- **Quickly read** through all the questions;
- **Mark** all the questions to which you know the answers;
- **Plan the time** you want to spend on them, leaving more time for the other questions;
- **Read the questions carefully**, underlining key words and try to identify the process that is required (e.g. compare, illustrate, interpret, explain, summarise);



- Think of the answer before writing it down! **Strictly comply with the request:** be clear, accurate and concise;
- **Write the answer carefully.** Re-read it and look for any possible grammatical mistakes;
- Answer the other questions **using the same procedure**;
- **Monitor the time** and manage it carefully;
- **Re-read** what you have written to make sure there are no mistakes.



*Go back to the start of the handbook and look at the titles you had chosen for the chapters in your book on studying, would you change any of them and how?*

1.

2.

3.

4.

5.

# 03. Tips For University Study

**Congratulations!**

You are now a part of **LUISS - Libera Università Internazionale degli Studi Sociali Guido Carli**.

The study and learning processes required of you by a university are very different from anything you had to handle when you still at high school. University students are asked to acquire a greater autonomy and the ability to manage their own activities with a view to achieving pre-defined goals and standards. While at high school processes were regulated mainly by teachers and mediated by class groups, at university YOU will be in charge of your learning. At university, you are expected to be able to organise your time, comply with the deadlines, plan, study, achieve good results, consider the subjects you are studying critically, interact with teaching staff and fellow students in your course, take active part in the university's intellectual life. In order to best comply with such demands, it is very important for you to know how to organise and motivate yourself and to reflect meta-cognitively

**In practice**, taking into account the suggestions provided in the handbook, to be more successful at university you can:

- Make use of the above motivational strategies to support your work and achieve your objectives;
- Use effective learning techniques and strategies in your study method;
- Manage your time, so as to devote the most appropriate and effective amount of time to studying, without sacrificing your other daily activities;
- Take care in choosing where to study, choose a place that can help you concentrate;
- Seek out and spend time with other students with whom you can study and discuss different aspects of learning, the content of university subjects, the problems to be dealt with and accessible resources;
- Always reflect!! On how you want to organise your life in order to achieve your goals, while you are carrying out activities and upon their completion. This will help you improve constantly and become a successful student!

#### WHAT DOES SELF-REGULATED LEARNING MEAN?

The more you feel you are the “author” of your learning, the more you can plan it, manage it, choose what to do and when to do it, check your progress and verify how much you have learned in order to improve. When an individual manages his/her own learning, it is called self-regulated. Self-regulated students are able to **choose** the appropriate strategies, **monitor** their performance and **self-assess** their achievements in respect of their objectives.

**In practice:** to make your learning self-regulated, emotionally pleasant and effective from the cognitive standpoint, you can:

- Organise your learning environment;
- Set yourself clearly formulated objectives;
- Define the time you want to devote to achieving your objective;
- Ask yourself questions about the personal meaning you give to the things you are learning;
- Choose the right strategy to process and remember them.

Important! **Resting** is an ally of studying! Sleeping less than 4-5 hours a night for several days reduces your attentional capacity, increases the likelihood of making mistakes, reduces long term memory capabilities. You will run the risk of spending a lot of time on your books without understanding a thing.  
It's up to you!

In this booklet, you will have found valuable information that may have helped you understand how your mind works, exactly what learning means and how to study. Doubtless you will have understood why studying for an exam is not an isolated event based on spontaneous action, but rather a pathway that requires a stable commitment. At the end of this concise overview, we would also like to offer a few suggestions to help you have a better experience of the first university semester in your life.

**In practice**, you can focus on the following:

- Regularly review your study materials (books, notes, lecture notes, slides, documents). It will be even more useful if you do this on a daily basis, but if not, do it at least once a week.
- It would be extremely useful if you could get into the habit of going to lectures having already activated your prior knowledge of the subject and skimmed the chapter that will be discussed by your professor. This will greatly aid in the processes that involve understanding, retaining and recalling the notions you have learned.
- Every day, after attending a lecture, organise lecture notes and your notes into more consistent and logical structures. Choose the techniques and strategies best suited to the subject, to the evaluation methods and to the time available.
- Once you have read a text, always take time to revise it and present your comprehension of it (in writing and/or orally). It would be even more useful if you were to get into the habit of integrating what you read in a book with what you have heard during the lecture and with your life, reflecting upon your own experience.
- Create opportunities for studying in a group and exchanging views with fellow students. Meaningful learning requires social conceptual mediation and, also, having friends you can share the university experience with can make it more pleasant and interesting.
- If you think it might be useful, keep a diary to reflect upon the way in which your learning is changing. This could help you become more conscious of your processes, but above it will develop your perception of yourself with a view to the profession you are about to enter.

- Try to acknowledge it when you need help and learn to ask the right people! Furthermore, if during a lecture you feel you have not understood something clearly, above all as regards the activities/tasks you are required to perform during the time set aside for personal study, ask your professors for clarifications and explanations.
- Clearly identify what a professor requires for an exam (e.g. reports you must write, articles you must read or draft, projects you must develop, syntheses you have to hand in, in-depth research you must do. Above all, distinguish between mandatory tests you need to take before the exam and additional studies that are usually recommended in order to develop specific topics). Remember that it is very important to align the techniques and strategies you choose while studying with the evaluation methods adopted by faculty.
- After exams, go back to check the charts and syntheses you have developed. This will help you further consolidate your comprehension.
- Plan your studies according to the deadlines so that you can optimise your work without having to do everything in haste the last day.

We hope that reading this booklet has provided some useful tips on how to improve and, above all, that it has provided practical suggestions that can help you prepare (feeling less anxiety!) for the next exam session.

If you would like to take part in a training course to learn to put all the above into practice, you can enroll in the initiative described below. Two expert trainers will teach you, in an experimental laboratory, how to study for success!

