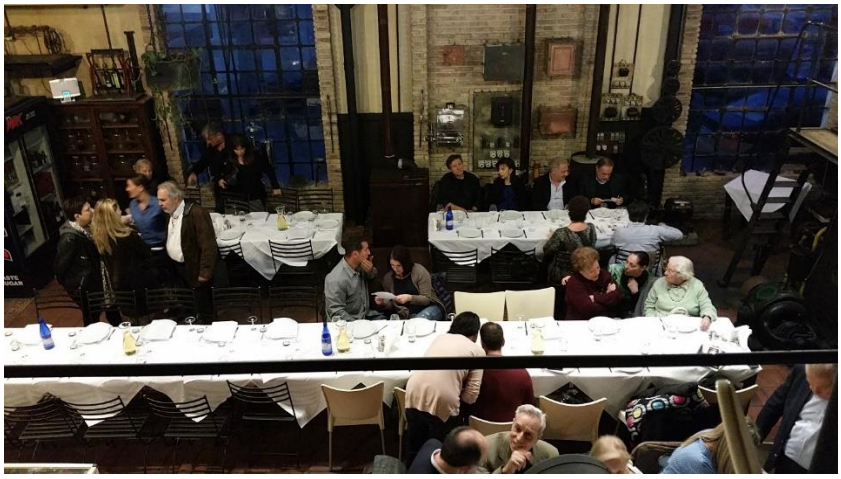
Treat yourself to 12 hours of "Learning how to learn" (one of the most popular MOOCs of all times*)

A recommendation-review by Marina Pantazidou



"**Learning is too important to be left behind in the classroom**"**

I was lucky. I learned about the course "Learning how to Learn" by chance, over dinner chat, from the niece of an acquaintance.

1. WHY I WROTE THE REVIEW

I am ever grateful to the niece of an acquaintance for giving me the recommendation-gift of the course "Learning how to learn" over a down-to-earth gourmet dinner in early April 2016 in an inspiring industrial setting (photo) and to myself for acting on the recommendation and completing it in the next few weeks. Hoping to re-gift the recommendation, I attended the course a second time –with unabated interest– in early 2021, in order to prepare this review.

Key insight

Learning takes more time than studying. This massive open online course (MOOC) explains why, and gives us tips to make better use of our studying & working time and become better learners.

The premise

We can learn more easily if we understand just a little bit of some of the basics about how our brain works. Why is that? Because **we are not consciously aware of how our brains work**. Some of its workings are inaccessible to us – but accessible to neuroscientists! **What is more, some of the findings of cognitive psychologists and neuroscientists are counter-intuitive** (e.g. see tips 4.1, 4.2, 4.7).

Why is this course useful

The course provides lots of new information for college students. For more seasoned, independent learners, the course reinforces good learning practices developed empirically. For all categories of learners, the course provides useful tips for practices we can develop or fine-tune for more efficient learning and working. For instructors, the course also offers an example of top-quality professional video lesson to aspire to.

2. COURSE INFORMATION* & DESCRIPTION

As of Feb. 2024, 3,704,657 students have enrolled in this course that is ostensibly designed for college students but in practice is useful for every learner and almost all instructors. Course content alternates between condensed information on how the brain works explained through analogies, useful tips, and readily applicable advice. Course material is divided in four weeks. Total video time for each week is less than 60 minutes. Course URL: https://www.coursera.org/learn/learning-how-to-learn

The use of analogies and metaphors to explain research findings from neuroscience and psychology is a convincing way to get us started on the practices recommended, but cannot give us confidence of unshakeable understanding of the concepts and ideas presented. Those who seek this deeper level of understanding may elect to combine attending the MOOC and reading the book that accompanies it (Oakley 2014). The book is also very handy for review, as trying to review the MOOC (any MOOC) is a recipe for headache.

3. MAIN MESSAGES

3.1 The brain processes information and solves problems in two complementary ways (Week 1). We are aware of the **focused mode**, the conscious, deliberate effort we put during study. We are rarely aware of the **diffuse mode**, the background information processing performed by the brain after we work in the focused mode, e.g. while we exercise or sleep. For quality understanding, we need to combine focused and diffuse thinking: switching back and forth between the two modes takes time.

3.2 The brain has two memories: **short-term memory**, which has up to four processing slots and **long-term memory**, which for practical purposes has limitless storage capacity (Weeks 1 and 3). To free up space from working memory, we need to move information to long-term memory by repetition that must be **spaced in time.**

3.3 During the 1980s, airplane companies allowed transatlantic passengers flying between Europe and USA two items of luggage, with no weight limitation. "Transportation rules" for moving knowledge items in the brain are akin to these '80s rules, if we replace luggage items with chunks (Week 2): **a chunk is a unit of usable knowledge** created by joining bits of information through meaning, thus allowing efficient use of brain space. According to Oakley (2014), "**chunking means integrating a concept into one smoothly connected neural thought pattern**". The analogy stops here, because unlike heavy pieces of luggage, which are difficult for us to handle, the bigger and the stronger chunks we create, the easier it is for us to access them and connect them to other chunks.

3.4 Because of **3.1** and **3.2**, learning takes more time than the hours we devote to studying and that's why it is of paramount importance to circumvent our **procrastination** tendencies, again by understanding a little better the psychology of procrastination (Week 3). We procrastinate about tasks that make us feel uncomfortable (to be more precise it is the anticipation of the task that makes us feel uncomfortable, not working on the task), so the mind escapes to something more pleasurable. Knowing the psychology of procrastination helps us –with minimum will power– to overcome the initial urge to do something else (to escape the anticipated discomfort) and soon after we start working on the task, the discomfort subsides!

3.5 Motto from Week 4** [which wraps up the course with additional advice for a) test taking, e.g. see tip 4.7, and b) effective learning]: "**Learning is too important to be left behind in the classroom"**.

4. VALUABLE TIPS

4.1 Knowing that we need to shift between the two thinking modes reminds us to take breaks and do something else (exercise is an excellent option) until our mind is consciously free of any thought on the problem.

4.2 The diffuse mode of thinking is particularly valuable when we are working on something new: this may appear to be counter-intuitive.

4.3 Sleep is valuable in many ways: it cleans the brain from toxins and allows the brain to rehearse the tough parts of whatever we are trying to learn.

4.4 Retrieval practice is one of the most powerful forms of learning. Testing in itself is a powerful learning experience.

4.5 Self-testing through recall helps create strong chunks, explaining to others does the same thing. Rereading does not help: on the contrary, because it is easy, it gives us an illusion of competence.

4.6 An analysis of the structure of habits and of how we can break them can be helpful to heavy duty procrastinators. All of us can benefit from one momentous tip to combat procrastination: **focus on process not product**, e.g. commit to work on a task for, say, three 25min periods, without needing to commit to complete the task. (One more reason why we need to space our efforts.) For extra discipline to remain concentrated for 25 minutes, we can use a kitchen timer!

4.7 When taking an exam, start from the most difficult problem, work on it for a little while. If you get stuck, give up and turn your focused attention to an easier problem. The difficult problem will continue getting processed in the background [or "marinated", as Mary Cha says in Oakley (2014): pp 143].

5. IN WHAT WAYS WAS THE COURSE MOST VALUABLE FOR ME

As an instructor, from a theory point of view, the course introduced me to chunks, the "constituent components" or "molecules" of usable knowledge. From a practice point of view, it showed me that the effort I put into i) justifying why we study something and ii) making apparent the organizational structure of the material presented is effort well spent [week 2 and Oakley (2014): pp 61]. As a professional, it helps me getting started with tasks I fear that they would take too long to be completed: committing to work on the task for a few 25min periods with short breaks in between is easy, I do not even need a timer (week 3). The course also showed me the need to work for smaller amounts of time on more things more often. This is not an easy discipline, but the course is a powerful reminder of the need to cultivate this habit ["**she tells you why and it makes sense**", as daughter of David B. Daniel says in Oakley (2014), pp 262].

THE COGNITIVE GIST OF THE GIST

• We create knowledge chunks in focused mode. We strengthen chunks with recall. Then, chunks help us learn new concepts in the diffuse mode.

THE MOTIVATIONAL GIST OF THE GIST

• Space tasks, not too close not too far apart. Commit to do uninterrupted work for specific lengths of time, interspersed with little breaks and rewards.

6. REFERENCES

Oakley, B. (2014). A mind for numbers, J.P. Tarcher/Penguin, New York, NY, USA (We are reminded often in the MOOC and many times in the book that the information and practices presented in it are especially helpful for math and science. The contents of ¾ of the book match well the contents of the MOOC. The examples given in the remaining ¼, focus exclusively on math and science.)

Oakley, B. and T. Sejnowski (2024). Learning How to Learn: Powerful mental tools to help you master tough subjects. Coursera open online course, https://www.coursera.org/learn/learning-how-to-learn (accessed Feb. 5, 2024).