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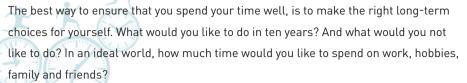
Time management for Scientists

Congratulations! You work in one of the most interesting environments in which you decide what you work on, and how you spend your time – at least up to some extent. You work in a setting in which your co-workers are also driven by curiosity and the urge to resolve issues. You and your co-workers focus mostly on the content of your research. It is the rule rather than the exception that you work longer hours than your contract requires, but that's all part of the deal. When you start a new project, you get so absorbed that you don't make a list first of things to do and when. As you go along you come across other questions that pique your interest and you wish you had the time to address them all.

Once the time allotted to the project is up, there are always extra jobs that you still have to do in your spare time if you want to get it all done. Obtaining financing and valorization of your work have become increasingly important and gobble up your time, as do education and research. At times, you feel there's not enough time to do everything right, you never have a chance to sit back and reflect on your work, or consider new angles.

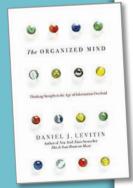






There is a big difference between working efficiently and working on the right things. The latter is effect-oriented, while the former has its limits. As your career advances, the number of projects increase, and with that the number of responsibilities and duties. At some point choosing the projects that are right for you becomes more important than working efficiently. You should want to check your "inbox" instead of always wanting to increase your output.

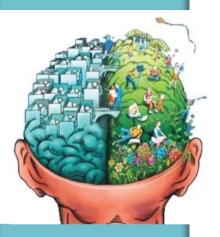
- Think about what you would really like to do, now and in the long run.
- Then choose the projects and duties you'd like to take on and also the projects you should turn down.
- Give priority to your chosen duties every day.



Do you still feel that you could work more efficiently? The ten tips in this e-book will help you. They are based on Daniel Levitin's The organized mind. In this book, he describes his research into the way our brains work, applying his findings to ways to improve your efficiency.

10 tips tips to Improve Your Time Management Skills





In your brain two systems alternate: The central executive network you use to focus on tasks, and a system that makes your mind start wandering. This wandering and daydreaming is a natural and strong tendency. As soon as you stop focusing, daydreaming takes over automatically. If you want to finish a difficult task, it is important that you direct all your energy to this task. This is not as easy as it sounds: Your prefrontal cortex tends to pick up new stimuli, but this is precisely the part of your brain that you need to keep your eye on the ball.

When you need to be fully concentrated, for instance when writing a paper, make sure that you cannot be distracted by fascinating new information. Go and sit in a quiet spot, or tell the people around you not to disturb you for some time (a day, a few hours). Switch off your phone and computer, and read your messages only when you have made a big dent in your work.

2 Avoid Multitasking



You simply can't multitask and focus at the same time. You can switch between tasks really quickly, but it will use up cognitive energy. Research has shown that if you study while multitasking, the information is directed to the wrong part of your brain, which makes it harder to remember the information.

If while working you respond to stimuli, dopamine (happiness hormone) is released. For instance, answering the phone, checking your mail, sending WhatsApp or text messages, will make you feel good. It's like candy you can't stop eating. Instead of eating healthy fruit (working on a difficult task over a longer period of time), you prefer fast-acting, addictive sugars (minor tasks). If you have to work on a difficult task over a longer period of time, set aside time later on to handle all those little tasks. In that way the little tasks cannot distract you from the 'big task' you are working on.

3 There is a Limit to Our Brain



Our brain cannot process a lot of information at the same time, or pay attention to different things at the same time. There is, in fact, no such thing as multitasking; what you do, is switch between activities very quickly. This goes at the expense of the efficiency and quality of your work.

This is illustrated by the famous experiment in which subjects were asked to count how many times the basketball players wearing white passed the ball. This is a well-defined task that requires you to remain fully focused. Stop reading for a moment and give it a try: www.youtube.com/watch?v=vJG698U2Mvo

Did you see the gorilla? Most people miss it. Not being able to multitask seems like a weakness, but the experiment is encouraging. It proves that if you actually focus on a specific task, you can keep other, non-relevant, information from your system. Helpful when your roommates are chattering.

Use an External Brain



There are many distractions that keep us from our work. Every day we get bombarded with interesting, new information. If we want to use our brain mainly for important tasks, we could use one or several sets of external brains to store that information. Examples are post-its, notebooks or more advanced digital systems. Many creative and effective people are known to use such *memory extenders*, often of the low-tech variety.

If you'd like to focus completely on a single task, but important ideas keep popping up, write them down and save them for later.

David Allen (author of *Getting things done*) calls this process "clearing the mind".



NP **Tidying Up: It Really Works**

Did you know that cortisol (stress hormone) levels in women rise when faced with clutter, more so than in men? Still, men would benefit from tidying up too. Clearing and sorting stuff opens up space in your brain for creativity. Keep things you need regularly in sight, and hide other things.

Clearing your desk before starting a new task is not just a form of procrastination. It really works. The best time, however, to do this, is at the end of your work day, so you

can start fresh in the morning.

Maybe you can use this knowledge as an argument to convince your co-workers to clear up the mess they left in the lab!



Work in Different Places



The context of the location where we learn has been proved to affect our learning and ability to reproduce information. For that reason, it is important to use different environments for different tasks. This could be the space where you work or relax (for instance, keeping your work and personal life separate). But also on another level: It helps to use different computers for working and gaming, or even to change the



wallpapers on your desktop to suit different tasks. Oliver Sacks recommends creating two different work spaces if you are working on two different projects. Stepping into the different space activates the reset button of your brain, and boosts your productivity and creativity.

7 Produce First, Review Second

You are often a creator, executor, reviewer and planner all rolled into one. You work, evaluate, adapt and move on. But this constant changing of roles takes a lot of cognitive energy, like multitasking. What's more – the reviewer or planner in you can seriously thwart the creator. Even as you write a new paragraph, you are already wondering whether your argument is weak, or your writing correct, and that can stop you from further developing good ideas.

In a creative process, it is better to keep the different tasks separate. When writing,

you should produce above all, preferably as much as possible. Write without judgment. Only when you're done, you should allow yourself to subject your writings to a critical review, and adjust them where necessary. Cluster similar tasks, and remain focused on the tasks at hand.



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Resolve Issues in a Relaxed Style

When trying to solve a problem, you focus completely on all different aspects. Using the left prefrontal cortex of your brain, you run through all possible solutions. But that's just the preparatory phase, for you are reviewing what you already know. In the second phase you should



relax, and cast the problem from your mind. That's when the neurons in the right half of your brain take over. They have longer dendrites and can gather information from a larger area of your brain. They might not be as precise, but they are better connected. The moment you have a new insight, an explosion of gamma waves occurs (a brain wave!), which effectively connects separate neural networks that are seemingly isolated. Relaxation is crucial to make this happen.



The Three B's

Think back to the last time you suddenly knew how to solve a problem. Do you know when and where that was? Ten to one you were in the Bath, in Bed or riding your Bicycle. Most likely you were not at work.

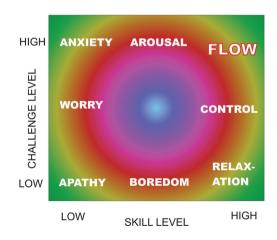




Flow is achieved if you do not explicitly think about what you're doing, but your activities flow naturally. You don't have to try hard to keep focused. It takes less energy to be very productive and efficient. You will achieve flow if a task both challenges you and at the same time gives you the feeling that you have enough skills to bring that task to a successful end. It is the feeling you get when solving a puzzle that is just hard enough. People like working in a flow.

Now Ask Yourself.

- How can you achieve and maintain flow in your work?
- When do you need to achieve that flow?
- What would be an inspiring environment for you?
- Whom could you ask to help you, or at least not disturb you?
- How should you go about this?



10 Creativity and Flow

Most creative people organize their lives in a way that maximizes the chances of flow, and allow them to stay in that flow for a long time.

Source: The organized mind by Daniel Levitin

Sting organizes and partitions his time to maximize

creative engagement. On tours, his time is well structured by others to give him maximum freedom. He doesn't need to think about anything at all except music. Importantly, he has a few hours of personal time every day that is sacrosanct. Everyone knows not to interrupt him then, and he knows that there is nothing pressing or more important to do than to use the time for creative and creativity-restoring acts. Because his senses aren't being bombarded daily by new sights, colours and spatial arrangements – at least during his four-hour personal time – Sting can let his brain and his mind relax and more easily achieve a flow.



We hope these 10 tips were useful. Of course there is much more to time management to discuss. For instance, how to schedule your goals and activities for a year, a week or day while prioritizing activities that are important to you. How to distinguish between activities that are 'Urgent' or 'Important' and how to say 'No' in a friendly way to activities you don't have time for.

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