

SPACE: THE FIRST FRONTIER

This paper explains why it is so important to separate work and life in lockdown, why we should ring in a new routine and how to build a new work structure quickly and effectively.

Let's face it. Work and life were already pretty imbalanced. Working from home for an extended period during the coronavirus pandemic (Covid-19) could break that wafer-thin boundary completely if we don't take the right steps. Who hasn't experienced that fleeting "*what day is it today...*?" lockdown moment yet?

None of us knows how long this will last. Reinforcing the work-life divide now is essential because it will have important consequences for our brain and our mental state – with knock-on effects for our performance and productivity both during and after Covid-19.

This article explains the science behind how the brain learns, the importance of home and the amazing way we compute space and time unconsciously. Next it outlines how we can co-opt these mechanisms to fortify the work-life barrier through a series of practical steps, and provides insights from experienced isolators in Asia and Europe.

ANYTHING BUT TEQUILA

The brain is an effective associative learning machine. When two things happen at the same time, they quickly become connected in our minds. This was the finding from Pavlov's famous experimental dogs.¹ Before the dogs were fed, they were played the same sound (a metronome). After a few incidents of this pairing, the dogs would start salivating whenever they heard the metronome – even if there was no food in sight. They'd learned to associate a previously neutral sound with a tasty meal, indicated by their physical reaction of salivating in anticipation.



All of us experience this kind of conditioning ourselves. When we hear a popular anthem from our younger years, it triggers memories that take us right back to a particular place and time. Associative learning is a powerful mechanism. It can happen very quickly – sometimes with just one exposure – and the effects can last for a lifetime. It's why some of us, for example, turn down tequila (or similar poison) decades after one bad experience.

Evidence from neuroscience tells us how this learning actually happens. When one brain cell activates a second brain cell repeatedly, the connection between them (the synapse) strengthens and becomes more efficient.² In essence, neurons that fire together wire together. (This is an

oversimplification of a complex process, but you get the gist).

NO PLACE LIKE HOME

Usually, we feel a sense of relief when we step inside our homes after a hard day's work or a long trip away. This effect doesn't wear off over time (we don't "habituate" to it), which suggests that home has a privileged status in our lives.³ This makes sense: our homes give us lots of things that are critical for our basic needs – like shelter, safety, warmth and food. It's also where we go to escape the world outside, unwind after a stressful day at work and generally recharge our batteries.⁴

If we don't keep home as sweet as possible, it will disrupt our ability to switch off (already a challenge thanks to handhelds) with knock-on effects for mental fatigue and burnout. When we do have time properly to unwind and repair our minds though, we can start the next day fresh and motivated.

NAVIGATING ACROSS SPACE AND TIME

Our brains contain a very advanced system for navigating space – a bit like an onboard GPS.⁵ This is driven by complex computations between networks of highly specialized neurons found deep in the temporal lobes. For example, we have neurons that fire only when we are standing in a particular spot (“place cells” in the hippocampus),⁶ and neurons whose firing patterns effectively generate a coordinate system (“grid cells” in the entorhinal cortex).⁷ These networks give us our own personal world map, with an accurate reading of where we are and where we are heading.

Our spatial awareness system is closely involved with that “home, sweet home”

feeling when we cross the threshold. In fact, our mental coordinates for “home” are especially strong (which explains how we manage to find our way home, even if tequila has disarmed us of our other cognitive powers).

We also have neural circuits that function like an Accurist-sponsored internal clock. If you take away all external cues that tell the time (daylight, timepieces), we naturally fall into a sleep-wake cycle more or less mirroring our 24-hour day – so found the intrepid scientists who lived in a cave for several weeks to investigate our daily rhythms.⁸

Our time perception is even more sensitive than that. Neuroscientists have found specialised circuits in the brain capable of differentiating millisecond timing (useful for quick motor movements or speech) and separate neural circuits that process timing in the seconds range (useful for decision-making and estimating time).⁹ This explains that strange experience of waking up 2 minutes before your alarm goes off.

HOW TO TRAIN YOUR BRAIN INTO A HEALTHY WORK-LIFE PATTERN

Luckily, we can co-opt these mechanisms that code time and space, and harness the ever-present process of associative learning, to teach ourselves when to switch our work head ON – and OFF. Using some simple methods, we can connect a location with work and set our own internal school bell.

Specific guidance on how to do this to best effect is set out below. Some may seem obvious, some may seem silly. All of them are important if we want to function optimally at work in lockdown and properly enjoy our down-time. Effectively (re)coding our meaning of space during the current confinement is more important than ever because of the challenge Covid-19 presents to our emotional wellbeing and mental health.

Our brains learn quickly, so it's important to be disciplined with these measures and start today. This will help you switch into work mode automatically, without confusion.

➔ Dedicate a specific area as workspace

Ideally the space will be in a different room. Physical distance will help psychological separation from home. If you only have the kitchen table, then use one side of the table for work and the other for eating/not-work. Each position will give you a completely different visual perspective and the brain's GPS is sensitive enough to distinguish the two.

➔ Resist the temptation to write that force majeure advice on the sofa

Extra penalty points for working in bed because of the additional detrimental impact on your sleep.¹⁰

➔ Set boundaries around time

This means doing the same things at roughly the same time each workday. This will alert your system to “work time” and restore a sense of control.

➔ Wear a work wardrobe

There is a strong association between what we wear and our performance mindset (hence why some shun permanent dress-down policies). It's also a big reason why competitive runners have “racing shoes”. Getting into the right gear is one way to tell the brain it's Go Time.

➔ Start an alternative morning programme

Follow your usual wake-up routine then replace commute time with something mentally beneficial – like meditation, yoga or exercise. Avoid the habit of sliding from bed to desk at five to nine, bypassing the shower and sustenance.

➔ Establish an end-of-day ritual

We need a signal to tell ourselves that work is over. Because work is now home, this signal has to be strong. Make your ritual distinctive, dynamic and fun. After you've recorded your time, why not replace your commute by walking 10 laps of sofa, dance to a track you love, light a scented candle or call a family member to chat. Put work out of sight and change out of school uniform.

WORDS OF WISDOM FROM AROUND THE WORLD

The messages from experienced isolators around the world are consistent:

- ★ Those who replicate their usual morning routine and wear a work wardrobe were surprised how “it really changed my mindset”
- ★ Those who built a dedicated home office said “I wished I’d done it sooner”
- ★ Across the board, the clear advice is “design a replacement structure for yourself as soon as you can”

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NOTES

¹ Pavlov, I. P. (1897/1902). *The work of the digestive glands*. London: Griffin. See also Watson, J. B. (1913). Psychology as the Behaviourist Views It. *Psychological Review*, 20, 158-177.

² “Hebb’s Rule”. See Hebb, D. O. (1949). *The Organization of Behavior*. New York: Wiley & Sons.

³ Burnett, D. (2018). *The Happy Brain – The Science of Where Happiness Comes From, and Why*. London: Guardian Faber.

⁴ Smith, S. G. (1994). The essential qualities of a home. *Journal of Environmental Psychology*, 14(1), 31–46.

⁵ In 2014, John O’Keefe, May-Britt Moser and Edvard Moser won the Nobel Prize in Physiology or Medicine “for their discoveries of cells that constitute a positioning system in the brain”.

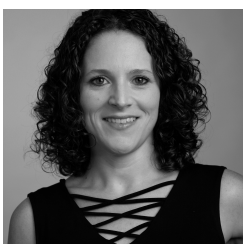
⁶ Ekstrom A. D., Kahana M. J., Caplan J. B. *et al.* (2003). Cellular networks underlying human spatial navigation. *Nature* 425, 184–188.

⁷ Hafting, T., Fyhn, M., Molden, S. *et al.* Microstructure of a spatial map in the entorhinal cortex. *Nature* 436, 801–806 (2005); Doeller, C., Barry, C. & Burgess, N. (2010). Evidence for grid cells in a human memory network. *Nature* 463, 657–661.

⁸ The “Mammoth Cave experiment”, conducted by Nathaniel Kleitman and Bruce Richardson in 1938. See also Mills, J. N., Minors, D. S. & Waterhouse, J. M. (1974). The circadian rhythms of human subjects without timepieces or indication of the alternation of day and night. *The Journal of physiology*, 240(3), 567–594.

⁹ For review see Buhusi, C. V. & Meck, W. H. (2005). What makes us tick? Functional and neural mechanisms of interval timing. *Nature Reviews Neuroscience* 6, 755–765.

¹⁰ This is a specific recommendation of the Division of Sleep Medicine and Harvard Medical School.



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