
The Well-Built Semester

*A student's evidence-based guide to time, focus, study,
sleep and staying well – built one small piece at a time.*

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ABOUT THE EVIDENCE

Every factual claim in this book is tied to a numbered source in the reference list at the back. Where the research is weak, mixed, or has failed to replicate, the text says so plainly rather than quietly leaving it out. Research also moves: findings described here reflect the published literature as of 2026.

ABOUT THE NUMBERS

Effect sizes, averages and percentages describe groups of people, not you. A method that helps the average student by a modest amount may do nothing for you, or a great deal. The only way to find out is to run the experiment on yourself, which is what the schedules and templates in this book are for.

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How to read this book

You do not need to finish it to start using it.

There are twenty-five short chapters here, arranged in seven parts, and they build on each other in a deliberate order: first the ground you stand on, then your week, then your attention, then how you learn, then your body, then your mind, then the eight-week plan that puts it all together. Read straight through if you like. Most people won't.

So here is the honest instruction. Read Part One properly — it is four short chapters and it changes what the rest of the book means. Then go to whatever is actually on fire. If you cannot start anything, read Chapter 8. If you are averaging five hours of sleep, read Chapter 17 before anything else, because nothing else in this book works well on five hours of sleep. If your exams are in three weeks, read Chapters 14 and 16 and ignore everything else until they are over.

Then, when the fire is out, come back and read Chapter 24. That is the chapter that turns a pile of good ideas into a system you actually run, and it is written to be worked through over eight weeks, one piece at a time.

What the boxes mean

Three kinds of box appear throughout. A **Do this** box is a concrete instruction you can carry out today. An **Honest note** box is where the popular version of a study and the actual study disagree, and I tell you which is which. A plain **In practice** box is a worked example or a short method.

What the small numbers mean

The small teal numbers in the text point to the numbered reference list at the back. There are over 160 of them. You are not expected to read them. They are there so that you can check me, which matters more in a book about “productivity” than in almost any other subject, because the genre has a long history of repeating studies that fell apart years ago.

One rule

Change one thing at a time. The most common way people fail with a book like this is to try eleven new habits on a Monday, hold them for nine days, and conclude that none of it works. Chapter 4 explains why that fails and what to do instead. It is the most important chapter in the book and it is two pages long.

Honest evidence: what this book will not do

The most useful thing a guide like this can offer is an accurate map, including the blank parts.

Student productivity advice is an unusually polluted field. It is full of confident claims with nothing behind them, studies that were never replicated, and a handful of famous experiments that turned out to be wrong in ways that never reached the people repeating them.

Some examples you will meet in this book. The idea that you should be taught in your own “learning style” has been tested properly and does not hold up.^{1,2} The claim that ten thousand hours of practice explains expert performance overstates what the data show by a wide margin.^{3,4} Willpower as a fuel tank that empties over the day — a foundational idea in a decade of productivity writing — failed a large multi-laboratory replication.^{5,6} And the single most-cited experiment on self-imposed deadlines, the one behind the familiar advice to break a big project into staged deadlines, is currently being retracted after independent analysts found evidence that the data were fabricated.^{7,8,9}

None of that means the advice in this book is arbitrary. It means the filter has to be tighter. So three things are true of what follows.

First, where the evidence is strong, I say so and give you the method. Spacing your study, testing yourself instead of rereading, getting enough sleep, and moving your body are all supported by large bodies of replicated work.

Second, where the evidence is modest, I say that too. Time-management training really does improve performance and wellbeing — but by a moderate amount, not a transformative one.¹⁰ Mindfulness helps stress and anxiety at roughly the size of a decent night’s sleep, not a miracle.^{11,12} Gratitude journalling has smaller effects than its popularity suggests.^{13,14}

Third, where something is a story rather than a finding, I will label it a story and keep it anyway if it is useful. Some of the best organising ideas in this book are not experiments; they are just good ways to think. They are marked as such.

What this book will not do is promise that you will become a different person in thirty days. The realistic claim is smaller and

better: if you build four or five of these pieces properly, over a couple of months, you will have more usable hours, remember more of what you study, sleep more, panic less, and stop feeling like the semester is happening to you.

The Ground

Four short chapters that change what the rest of the book means. Nothing here is a technique. This is the floor the techniques stand on.

CHAPTER ONE

The 168 Hours You Actually Have

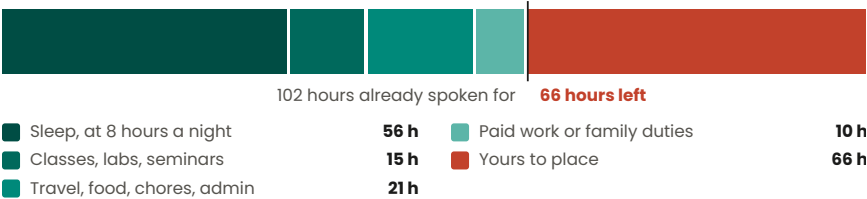
You almost certainly have the time. What you do not have is an accurate picture of where it goes.

Everyone in your year says the same sentence: *I don't have time*. It is said with total sincerity and it is almost never literally true. What is true is that nobody knows where their week goes, because human beings are unreliable narrators of their own schedules.

This is not a character flaw, it is a well-documented bias. When people estimate how long a task will take, they systematically underestimate — even when they are reminded that they have underestimated every previous time, even when they are asked to imagine everything going wrong.^{15,16} The same distortion runs in the other direction for whole weeks: the hours you spend on things you would not defend out loud are the hours you are least likely to recall.

So the first move is not a system. It is a measurement.

One week = 168 hours. Here is a fairly typical one.



Sixty-six hours is more than a full-time job. The question is never whether you have time.

An illustrative week, not survey data — sleep is generous here and the classes are real.

Three kinds of hour

Every hour in your week is one of three things. **Fixed** hours are genuinely not yours: lectures, the shift you are rostered on, the train. **Committed** hours are yours in principle but you have already promised them: sleep, meals, the society you joined, your family. **Discretionary** hours are what is left.

Students consistently believe they have almost no discretionary hours. When they measure, they find between forty and eighty. The gap between those two numbers — the felt week and the real week — is the single most useful thing you can discover in the next three days.

DO THIS

For three days, write down what you are doing every time you change activity. Not in advance, not from memory at bedtime — in the moment, in one line, on your phone or a folded piece of paper. Round to fifteen minutes. Do not tidy it up and do not change your behaviour to make the log look better; a flattering log is a useless log.

On day four, add it up into the three categories. Template 1 at the back of this book has a grid for it.

Two things usually happen. The first is a small shock: a quantity of scrolling, or streaming, or lying in bed awake, that is larger than you thought. The second is more useful and much less discussed — you find your *good* hours. Almost everyone has two or three hours a day when their attention is sharp, and most people spend them on email, errands and the group chat, and then attempt their hardest work at eleven at night on the worn-out end of the day.

What to do with the answer

Nothing, yet. The audit is a photograph, not a verdict. You will use it in Chapter 5 to build a week, and in Chapter 24 to decide what to add first. For now the only job is to stop guessing.

HONEST NOTE

Does time management actually work? A meta-analysis pooling well over a hundred studies found that it does — but the effect on

performance is moderate, not dramatic.¹⁰ The more interesting finding is that time management improved *wellbeing* at least as much as it improved performance, and in some analyses more.

That is worth holding onto. The realistic promise of this book is not that you will produce twice as much. It is that you will feel considerably less like the semester is happening to you.

CHAPTER TWO

Needs, Wants and the Urgency Trap

The problem is not that you choose wants over needs. It is that urgency disguises itself as importance.

Ask a student what matters this semester and you will get a good answer within about four seconds: the dissertation, sleeping properly, not losing touch with two specific friends. Ask the same student what they actually did yesterday and the two lists barely overlap. This is not hypocrisy. It is a predictable bug.

In a series of experiments, people chose to do an objectively worse-rewarded task over a better one purely because the worse task had an artificial deadline attached. The effect held even when the reward difference was made obvious, and it was strongest in people who described themselves as busy.¹⁷ Urgency does not just compete with importance; it impersonates it.

	URGENT	NOT URGENT
NEED	Do it now The exam tomorrow. The form that closes at five. The friend who is actually in trouble. Small, loud, and genuinely real.	Where the semester is won Sleep. Spaced review. Exercise. The essay due in three weeks. The friendship you are not maintaining. Never urgent. Always decisive.
WANT	The urgency trap The notification. The group chat. The tab that pinged. The reply that could wait a day. Feels like work. Isn't.	Rest, or the fake kind Real rest if you chose it on purpose: a walk, a film, people. Doom-scrolling if it chose you. Same hour. Different outcome.

Most students spend their best hours bottom-left and wonder why top-right never happens.

A thinking tool, not a research finding. The urgency effect it describes is measured.¹⁷

The distinction that actually helps

Forget “important” for a moment; it is too vague to act on. Ask instead whether a thing is a **need** or a **want**. A need is something that, if you skip it for a month, causes visible damage: sleep, attendance, the coursework, eating, one or two human relationships. A want is everything else — and wants are not bad. Half of a good life is wants. They simply must not be paid for out of the needs budget.

Attendance is a useful example because students routinely treat it as a want. Across a large body of studies, class attendance is one of the strongest single predictors of grades in higher education — stronger than most study-skill measures and stronger than standardised admission scores.¹⁸ It is not urgent on any given Tuesday. It never will be. That is precisely the trap.

If you want the short version of what does predict university grades, decades of meta-analysis give a consistent answer: prior performance first, then study habits and skills, self-efficacy, effort regulation and engagement — each of them modest on its own, and none of them exotic.^{19,20,21,22} There is no hidden variable. There is a small number of ordinary things, done regularly.

IN PRACTICE

At the start of a semester, write down three needs. Not ten. Three. They should be things you could check honestly on a Sunday night: *Did I attend? Did I sleep seven hours or more on at least five nights? Did I do four spaced review sessions?*

Everything else in your week is allowed to be chaos. If those three hold, the semester holds.

Naming three needs does something quietly powerful: it gives you permission. Most student guilt is undifferentiated — a low background hum that you should be doing something, always. A named short list converts that hum into a yes-or-no question you can answer, and once it is answered, the evening is genuinely yours.

HONEST NOTE

Grids like the one opposite are everywhere in productivity writing and none of them has been tested as an intervention. I am including this one because the underlying *bias* is real and well measured, and because sorting things this way takes ninety seconds. Treat it as a lens, not as evidence.

CHAPTER THREE

The Person You Think You Are

Self-image is not decoration on top of the system. It quietly decides which systems you are willing to try.

There is a belief that sits underneath everything else you do as a student: your estimate of whether you are the kind of person who can do this. It has a technical name — academic self-efficacy — and it is one of the better-supported predictors of how students actually perform.^{23,24} In a large synthesis of the psychological correlates of university grades, it came out among the strongest of the non-cognitive factors.²⁵

The obvious conclusion — so *believe in yourself harder* — is wrong, and it is wrong in an interesting way. The relationship runs in both directions. Belief improves performance; performance improves belief; and of the two arrows, the second is the one you can actually pull.

Change the evidence, not the affirmation

Your self-image is not built from statements. It is built from a running tally of what you have observed yourself do. Telling yourself you are disciplined while watching yourself abandon things is not neutral — it actively deepens the belief you are trying to fix, because you have now added dishonesty to the file.

This is the real argument for the absurdly small starts in the next chapter. A two-minute commitment kept for fourteen days is not impressive. It is, however, *evidence*, and evidence is the only currency this particular system accepts. You are not building a habit at that point. You are building a witness.

Be harder on the work than on yourself

There is a widespread suspicion that going easy on yourself after a failure makes you soft. The experimental result points the other way. Students prompted to take a self-compassionate view of a failure subsequently studied *longer* for a make-up test than students in control conditions, and reported more motivation to improve, not less.²⁶ Across randomised trials, self-compassion interventions produce reliable improvements in wellbeing and reductions in self-criticism.^{27,28}

The mechanism is not mysterious. Harsh self-criticism after a bad week makes the whole subject painful, and people avoid painful subjects. The student who calls themselves lazy on Sunday is measurably less likely to open the file on Monday.

DO THIS

When something goes badly, write two sentences before you write anything else. First: *this is a normal thing that happens to people doing hard things*. Second: *here is the one specific thing I will change*.

The order matters. The second sentence is unusable while you are still in the first feeling.

HONEST NOTE

You will have met the idea that believing intelligence is changeable transforms achievement. The honest version: a very large pre-registered national experiment found a real effect, but a small one, concentrated in lower-achieving students — on the order of a tenth of a grade point.²⁹ Two independent meta-analyses of the wider literature found effects near zero once study quality was accounted for.^{30,31}

So: a useful attitude, and free to adopt. Not a lever. The levers are in Parts Two to Six.

CHAPTER FOUR

Start Absurdly Small

The most important chapter in this book, and the one people most want to skip.

Here is how it usually goes. Sunday night, a surge of clarity: from tomorrow, up at six, gym, two hours of study before class, no phone after nine, proper meals. It holds for four days. On day five something ordinary happens — a late night, a bad mood, a friend in crisis — and the whole structure goes at once, because it was one structure and not five.

The research on how habits actually form is unglamorous and useful. In the best-known field study, volunteers adopting a simple daily behaviour took a *median* of sixty-six days to reach their maximum level of automaticity — and the range ran from eighteen days to well over two hundred, depending on the behaviour and the person.³² Missing a single day did not measurably damage the trajectory.

Two ways to arrive at forty-five minutes a day**The plan you usually make: forty-five minutes from Monday**

Each rung is held until it is boring, then raised once. Never two rungs at a time.

The ladder is slower for three weeks and far faster for the other forty-nine.**Timings** from a real-world habit-formation study; the rungs themselves are a method.³²**What a habit actually is**

A habit is not willpower that has hardened. It is an association between a stable context and a behaviour, built by repetition in that context.^{33,34} Which gives you the two practical rules. First: attach the new behaviour to something that already happens at a fixed time and place — after you sit down in the library, after your last lecture, after you put the kettle on. Second: make the first version small enough that you would feel silly claiming credit for it.

Repetition in a stable context is doing the work; the intention is only there to get you to the context.^{35,36} This is why “exercise more” fails and “put the kit by the door and walk at eight” does not.

The single most reliable technique here is embarrassingly simple. Write the plan as *when-then*: *when I get back to my room after my last class, then I will open the textbook and read one page*. Specifying the when and the where, in advance, in that form, has a substantial and repeatedly replicated effect on whether people follow through — a meta-analysis across nearly a hundred studies put it at a medium-to-large effect.^{37,38}

DO THIS

Pick one behaviour. Write it as a single sentence in this exact shape:

When [something that already happens], then [the smallest possible version].

Hold it for two weeks without raising it, even on days when you could easily do more — especially on those days. Raising the rung early is the most common way this fails. Template 3 at the back is a ladder to fill in.

HONEST NOTE

A decade of productivity advice rested on the idea that willpower is a fuel tank that drains as you use it, so you should schedule hard things early and avoid decisions. It is an appealing model. It did not survive testing: a coordinated replication across twenty-three laboratories found an effect indistinguishable from zero,⁵ and a later multi-site test reached the same conclusion.⁶ The original finding³⁹ is still cited constantly.

What survives is narrower and still worth using: it is easier to do hard work at a time you have protected in advance than at a time you have to negotiate for. Not because your tank is full, but because you are not making the decision at all.

The Week

A semester is not managed. A week is managed, fifteen times in a row. This part builds the container.

CHAPTER FIVE

Build the Week Once

Decide the shape of a normal week a single time, then spend the semester filling it in rather than inventing it.

Most students run their lives from a to-do list and a vague sense of dread. The list says *what*; it never says *when*. So every morning becomes a negotiation, conducted by a tired person with imperfect information, about what to do with the next few hours – and that negotiation is where the day is usually lost.

The alternative is a skeleton: a small number of recurring blocks that are the same every week. Not a colour-coded schedule of all 168 hours – that always collapses and it deserves to. Six to ten anchored blocks, and everything else left deliberately empty.

A skeleton, not a timetable

	MON	TUE	WED	THU	FRI	SAT	SUN
Early	Deep 1	Move	Deep 1	Move	Deep 1	Move	
Late AM	Class	Class	Class	Class	Class		
Afternoon	Deep 2	Review	Deep 2	Review		Open	Reset
Evening					Off	Off	Off

☐ Deep block

☐ Fixed (class)

☐ Review

☐ Protected off

☐ Open

Roughly half the week is white space on purpose.
Build this once. You are not deciding what to do each morning; you are only showing up.

An example skeleton. The four anchors matter; the specific hours are yours to set.

The four anchors

A workable student skeleton needs four things in it, and you build them in this order.

- 1 **A sleep window**, before anything else. A fixed hour to be in bed and a fixed hour to be up, the same on Saturday as on Tuesday. Chapter 17 explains why this is the highest-yield block on the page.
- 2 **Two deep blocks** in your good hours, from the audit in Chapter 1. Ninety minutes each is ideal; sixty is fine. These are for the work that is difficult, not the work that is fiddly.
- 3 **Two or three review slots** of twenty to thirty minutes, spread across the week — the engine of Part Four. These are short enough to survive a bad week.
- 4 **Protected off-time**. One evening and one half-day where studying is not merely unscheduled but actively not allowed. Without this the skeleton is a cage and you will break it to escape.

Everything else — lectures, work shifts, the gym, laundry, other people — fills in around those. The point of writing them down is not organisation. It is that on Wednesday morning you do not have to decide anything; you only have to show up to something already decided by a better-rested version of you.

IN PRACTICE

Put the skeleton somewhere physical if you can — a printed grid on a wall beats a calendar app for this one job, because it is visible without being opened. Template 2 at the back is a blank version.

Then review it once a week, for ten minutes, on the same day. Monitoring progress toward a goal is one of the few interventions with solid meta-analytic support, and the effect is larger when the record is physical and when someone else can see it.⁴⁰

Two things make the anchors stick. They should be *specific* rather than aspirational — a long line of research on goal setting finds that specific, moderately difficult goals outperform vague intentions to do your best.⁴¹ And they should be few, because the recurring finding

across the time-management literature is that people adopt elaborate systems and abandon them within weeks.^{42,10}

When it breaks

It will break, roughly every third week. The recovery rule is: never rebuild the whole thing. Restore the sleep window first, then one deep block. Two anchors standing is a working week. Trying to restore all four at once is how a bad week becomes a bad month.

CHAPTER SIX

Get It Out of Your Head

An unfinished task you are holding in memory costs something even while you are doing nothing about it.

There is a particular kind of tiredness that has nothing to do with work. It comes from carrying nine unresolved things at once: the email you have not sent, the reading you have not started, the form, the friend's message from Tuesday. None of them is hard. Together they occupy a background process that never quite closes.

The classic observation is that unfinished goals stay active in mind and intrude on unrelated tasks. The more useful modern finding is what switches them off. In a set of experiments, simply making a *specific plan* for an unfinished goal — not completing it, just writing down when and where it would be dealt with — removed most of the intrusive cost, and performance on the unrelated task recovered.⁴³

This is the entire justification for keeping a list. Not productivity theatre: the list is a place to put things so your head can stop holding them.

One list, entered fast, reviewed weekly

The design principles are boring on purpose.

- **One inbox, not six.** Notes app, paper pad, whiteboard — the medium does not matter, the singularity does. Two lists means neither is trusted, and an untrusted list does not release anything.

- **Capture in under five seconds.** If adding something requires choosing a project and a tag and a due date, you will not do it at the moment it occurs to you, which is the only moment that counts.
- **Write the next physical action.** “Dissertation” is not a task; it is a source of dread. “Open last year’s marking criteria and read the second page” is a task.
- **Empty it once a week** in the same ten-minute review as the skeleton. Things that have sat untouched for a month are usually not tasks. Delete them and notice that nothing happens.

HONEST NOTE

Offloading memory onto a device is genuinely helpful for freeing attention, and the same research literature finds that we remember offloaded material itself less well, and that having searched for information once makes us more likely to search rather than think next time.^{44,45}

For tasks, offloading is pure gain — there is no value in remembering that the form is due. For course material it is the opposite, which is what Part Four is about. Put the admin in the list. Keep the ideas in your head.

DO THIS

Tonight, take twenty minutes and write down every single open loop you are carrying, however small — including the ones that are embarrassing and the ones that are not really yours. Do not sort them. Do not do any of them.

Most people report sleeping better the same night. That is the effect described above, arriving on schedule.

Why You Put Things Off

Procrastination is not laziness, and it is not a time-management problem. It is a mood problem with a deadline attached.

Between two-thirds and nine-tenths of university students describe themselves as regular procrastinators, depending on how the question is asked.⁴⁶ It is not a minority affliction and it is not, as it feels from the inside, a personal defect. It is the predictable output of a system with four inputs.

The four dials

HOW LIKELY YOU ARE TO ACTUALLY START

Belief you can do it × How much it matters

Pull of distraction × How far off the deadline is

Four dials, not one character flaw. Raise the top two, lower the bottom two.

Every method in the next two chapters is just one of these four dials, turned.

A compact summary of the dominant model of procrastination.^{46,47}

Read the fraction as a sentence. You start things you believe you can do, that matter to you, when there is nothing more tempting nearby and the deadline is close. You avoid things you doubt you can do, that feel pointless, while something pleasant is within reach and the deadline is far away.

That gives you four distinct problems with four different fixes, and it explains why generic advice keeps failing: telling a student with an expectancy problem to “just start” addresses the wrong dial entirely.

Which dial is stuck

- **Expectancy** — you do not believe you can do it. Shrink the task until you obviously can. This is the most common one and the most commonly misdiagnosed as laziness.
- **Value** — it feels meaningless. Connect it to something real, or accept that some of it genuinely is meaningless and do it badly and

fast rather than slowly and guiltily.

- **Impulsiveness** — something more pleasant is one tap away. This is an environment problem; Chapters 10 and 11 handle it.
- **Delay** — the deadline is a month away. Create a nearer one that somebody else can see.

The mood underneath

There is a further layer worth knowing. Delaying a task reliably makes you feel better *right now* — that is what the behaviour is for. On this account procrastination is short-term mood repair, and the task is avoided not because it is long but because approaching it feels bad.⁴⁸ Which is why the fix is so often emotional rather than logistical, and why perfectionism and procrastination travel together so consistently.^{49,50}

Procrastination also has a real cost, and it is worth being straight about it: across studies, procrastination is reliably associated with lower academic performance.⁵¹ Not catastrophically — but the effect is consistent, and it compounds across a degree.

IN PRACTICE

Next time you notice yourself avoiding something, do not ask why you are lazy. Ask which of the four dials is turned the wrong way, name it out loud, and apply the matching fix. The naming alone often dissolves it, because most avoidance survives on being vague.

CHAPTER EIGHT

Starting Is the Whole Skill

Almost nobody stops a task they have genuinely begun. The resistance lives entirely in the first ninety seconds.

Notice what actually happens on a bad afternoon. You do not sit down, work for eight minutes and give up. You never sit down. The whole battle is fought before the file is open, which means the only

skill that needs practising is the one that gets you from the doorway to the chair.

Shrink the entry, not the task

The instruction is not “work for two minutes.” It is “perform the two-minute version of the entrance.” Open the document and read the last paragraph you wrote. Copy the essay question onto a blank page. Put the reading on the desk and write the date at the top of a sheet.

You are permitted to stop immediately afterwards, and you should genuinely mean it — a bluff stops working after about a week. In practice you will usually continue, because the thing that was unpleasant was the anticipation, and the anticipation does not survive contact.

Three tools that hold up

- **The when-then sentence** from Chapter 4, written the night before. It removes the decision rather than winning it.³⁷
- **Bundling.** Pair a thing you avoid with a thing you want, and only allow the want during the avoided thing — the specific album, the specific café. In a field experiment, restricting access to addictive audiobooks to gym visits meaningfully increased attendance.⁵² The effect faded over months, which tells you it is a starter motor, not an engine.
- **A visible near deadline.** Not a private one. Tell one person a date, or book the slot with a study partner. Delay is the dial with the longest reach.

Use the calendar’s psychology

People are measurably more likely to begin something on a date that feels like a boundary: a Monday, the first of a month, a birthday, the start of term.⁵³ This is free and you should use it — but the same research implies the flip side, which is that a missed start feels like it has to wait for the next landmark. It does not. Wednesday the nineteenth is a perfectly good day to begin.

HONEST NOTE

The most famous experiment on self-imposed deadlines — the source of the standard advice to split a project into staged deadlines — was found in 2026 to contain data that independent analysts concluded were fabricated, including duplicated participant records and an implausibly large effect. Both authors have asked for it to be retracted.^{7,8} A careful replication published alongside the investigation found that varying the deadline structure had a negligible effect on performance.⁹

So I am not going to tell you that staged deadlines are proven. What survives is the much weaker and better-supported claim behind the third tool above: a nearer deadline beats a distant one because of the delay dial, and a deadline someone else knows about beats one only you know about.

Attention

Hours are not the scarce resource. Uninterrupted hours are. This part is about protecting the difference.

CHAPTER NINE

What Switching Really Costs

You do not lose the seconds you spend on the interruption. You lose the minutes it takes to get back.

Ask someone how much a quick message check costs them and they will say twenty seconds, because twenty seconds is the part they can see. The cost that matters is invisible from the inside: after you switch tasks, part of your attention stays with the previous one, and it stays there for a while.

This is called attention residue, and it has been measured directly. People interrupted mid-task and moved to a new one performed worse on the new task — and the effect was strongest when the first task had been left unfinished, which is almost always the case when you pause to check something.⁵⁴ Laboratory work on task switching finds the same signature: a measurable reconfiguration cost every time control shifts from one task set to another.^{55,56}

The same sixty minutes, two ways



Shaded = climbing back to where you were. At the desk; not working yet.

Illustrative, not measured — but the direction is well established.

The tax is the return, not the glance.

Illustrative proportions. The switching cost itself is well established.^{54,55}

Why it does not feel expensive

Because the recovery period feels like working. You are reading. Your eyes are moving. What is missing is the assembled mental context — the argument you were three steps into, the variables you were holding, the sentence you had half-built — and rebuilding that is slow and largely unconscious. You cannot feel it because from the inside it is indistinguishable from being slightly stupid.

Field observation of people at work found that after an interruption, returning to the original task took on average around twenty-three minutes — though people compensated by working faster, at the cost of measurably more stress and frustration.⁵⁷ That number gets thrown about carelessly, so be precise about what it means: it is not twenty-three minutes of dead time per notification. It is how long the original thread stayed dropped in a real workplace full of other demands.

HONEST NOTE

A widely repeated claim holds that heavy media multitaskers are permanently worse at filtering distraction. The original study did report that.⁵⁸ Two direct replications plus a meta-analysis found the association to be very small and not reliably different from zero,⁵⁹ and a later review by researchers in the same field concluded the evidence is mixed and mostly correlational.⁶⁰

Which is to say: watching four hours of short videos is probably not rewiring your brain. It is, however, four hours. The case against multitasking rests on the switching cost above, which is solid, and does not need the scarier version.

The practical conclusion is narrow and firm. The unit of work is not the hour; it is the uninterrupted stretch. A ninety-minute block with four checks in it is not ninety minutes of work, and no amount of good intentions converts it into one.

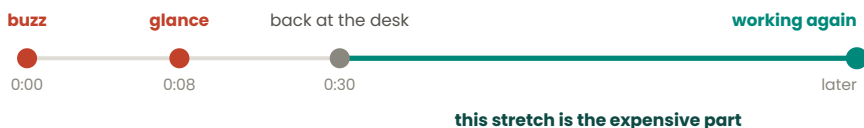
The Phone Chapter

Not a lecture about screen time. A short account of what has actually been measured, and the three settings worth changing.

The device is not the villain of this book. It is your camera, your maps, your bank, your friends and half your coursework. But it is engineered by large numbers of clever people to interrupt you, and it is worth knowing what the interruptions do.

Start with the smallest unit. In a controlled experiment, simply receiving a notification – without looking at it, without replying – significantly increased errors on an attention task. The disruption was comparable to actively using the phone.⁶¹ In another study, students asked to maximise notifications for a week reported higher inattention and hyperactivity symptoms than the same students in a silenced week.⁶² When notifications were instead delivered in three scheduled batches a day, people were less stressed and more attentive.⁶³

The cost of one glance



The glance costs seconds. Getting back to the sentence costs minutes.

Return times from field observation of interrupted work.^{57,54}

The classroom evidence is unusually blunt

Students who multitasked on a laptop during a lecture scored substantially lower on a comprehension test afterwards – and so did students merely seated in view of someone else's multitasking screen, who did worse than students with no laptop in their line of sight at all.⁶⁴ A large randomised trial in real university courses found that permitting laptops and tablets in class lowered final exam performance.⁶⁵

Across the wider literature the association between heavy smartphone use and lower academic performance is consistent, though most of it is correlational and the effect sizes are modest.⁶⁶

HONEST NOTE

You may have heard that having your phone face-down on the desk drains your working memory even when it is switched off. That was a real and striking result.⁶⁷ A later well-powered replication did not reproduce it.⁶⁸

Put the phone in another room anyway — not because its mere presence lobotomises you, but for the ordinary reason that a phone within arm's reach is a phone you will pick up, and the previous chapter explains what that costs.

What is actually worth doing

In a month-long randomised trial, blocking mobile internet on participants' phones for two weeks — calls and texts still working — improved sustained attention, mental health and subjective wellbeing, with the mental-health effect being the largest. Ninety-one per cent of participants improved on at least one measure, and the gains were explained by more time spent offline, more face-to-face contact and better sleep.⁶⁹

You do not have to go that far. Three settings capture most of it:

- 1 Notifications off for everything that is not a human being contacting you directly. Not “on silent” — off.
- 2 The phone physically outside the room during deep blocks. In a bag in the hall is enough; the friction is the mechanism.
- 3 One app blocker with a schedule you set on a calm day, not in the moment. You are negotiating with a version of yourself who has not yet been provoked.

A Room That Does Half the Work

Willpower is an expensive way to solve a problem that furniture can solve for free.

Since habits are built from the association between a context and a behaviour,³⁴ the room is not a backdrop — it is part of the mechanism. A desk that has been used for nine different activities cues none of them. A desk used only for one thing starts doing some of the starting for you.

One place, one job

If you have the space, keep a surface that is only for difficult work. If you live in one room — as most students do — the equivalent is a reversible signal: the lamp on, the door shut, a particular chair, the desk cleared to three objects. Any consistent, specific cue will do. What does not work is doing coursework in the same position, in the same bed, in which you also watch, eat and sleep, because then the cue points everywhere at once and your brain votes for the most attractive option.

Keeping the bed out of it has a second payoff that Chapter 17 will collect: sleep behaves better when the bed means one thing.

The music question, answered properly

This is the most-asked question in student productivity and the evidence is clearer than you would expect. A meta-analysis of background music in adults found no overall benefit to performance and a consistent *impairment* of reading comprehension.⁷⁰ A large Bayesian meta-analysis of auditory distraction during reading reached the same conclusion: background speech reliably hurts reading, and music with lyrics behaves like speech.⁷¹

So the honest rule: instrumental or nothing while reading and writing. Lyrics are tolerable for mechanical work — problem sets you already know how to do, formatting, transcription. And if you use music mainly to mask a noisy flat, that is a legitimate and different job; steady instrumental sound or broadband noise masks better than anything with words in it.

DO THIS

Before a deep block: clear the surface to the two or three things the task needs, put everything else on the floor, and leave. Come back and sit down. The thirty seconds of clearing is not tidiness; it is the cue.

Somewhere to go afterwards

Attention recovers better in some environments than others. A walk in a park improved performance on a demanding memory task by about twenty per cent relative to an equivalent walk through busy streets.⁷² A ninety-minute walk in a natural setting reduced self-reported rumination — and the associated brain activity — compared with the same walk in an urban one.⁷³ And people generated substantially more novel ideas while walking than while sitting, indoors or out,⁷⁴ although the same study found walking did not help with problems that have a single correct answer.

The proposed mechanism is that directed attention — the effortful kind you spend on a problem set — is depleted by concentration and restored by environments that hold your attention without demanding it.⁷⁵ Whether or not the mechanism is right, the practical distinction holds: take the essay structure for a walk, and do not take the problem set.

CHAPTER TWELVE

Anatomy of a Deep Session

What a good ninety minutes actually looks like from the inside, including the part that feels like failure.

The first ten to fifteen minutes of serious work are almost always bad. You reread the same paragraph, you feel restless, you are convinced today is not going to work. This is not a sign that today is not going to work. It is what the beginning feels like, every time, for everyone, and the reason people believe they “cannot focus” is that they keep quitting during the part that is supposed to feel like that.

A ninety-minute block

The warm-up is a fixed cost. Shorter sessions pay it nearly as often for less plateau.

Quitting at 25 minutes means you paid for the warm-up and left before the work.

Schematic. The warm-up and the fade are consistent; the exact minutes vary by person.

The shape

A session has three parts. The **warm-up** runs roughly ten to fifteen minutes and feels like wading. The **plateau** is the work — typically forty to sixty minutes, and if the difficulty of the task is well matched to your current skill it can become genuinely absorbing.^{76,77} The **fade** arrives somewhere after seventy or eighty minutes and is not negotiable by willpower.

Three rules follow. Do not schedule blocks shorter than sixty minutes for hard work, because you pay the warm-up either way. Do not push past the fade, because what you produce there is usually deleted the next day. And decide the single objective of the block before you start it — not “work on the essay” but “draft the second section, badly.”

Breaks, and the timer question

Short breaks do help. A meta-analysis of micro-breaks found reliable improvements in vigour and reductions in fatigue, with clearer effects on wellbeing than on performance — and longer breaks did more for performance than very short ones.⁷⁸ Brief deactivation of a task goal also protects against the decline in vigilance that comes from staring at one thing for a long time.⁷⁹

The famous twenty-five-minute timer method has, as far as I can find, never been tested as a package in a controlled trial. Its components — a defined start, a single task, a scheduled break — are each well supported. The specific number is arbitrary, and for

reading and writing it is arguably too short, because twenty-five minutes is mostly warm-up.

IN PRACTICE

Try ninety minutes of work and fifteen minutes away — away meaning standing up, out of the room, and not on a screen, because a break spent scrolling gives the attention system nothing to recover with. Two of those blocks in a day is a genuinely productive day. Four is a rare one. Six does not exist, whatever the internet says.

Learning

This is the part with the strongest evidence behind it, and the part students are least likely to be taught. Most people study in the way that feels best and works worst.

CHAPTER THIRTEEN

Notes You Will Actually Reuse

A transcript is not a set of notes. The difference is five minutes of work, done afterwards.

Most lecture notes are written once and never opened again. They are a transcript — an attempt to catch the words as they go past — and as a record of the lecture they may be excellent. As a study tool they are nearly useless, because nothing in them requires you to do anything.

Note-taking has two separable functions: the act of writing helps you encode at the time, and the page itself is a store you can come back to.⁸⁰ Students optimise the second and neglect the first, when the evidence says the first matters more and the second only pays off if you actually revisit it.

A page with three zones

Questions Written after, not during. "Why does X cause Y?"	Notes
Summary, in your own words, from memory	

The left column and the bottom strip are filled in after the lecture, from memory.
That five minutes is what turns a transcript into a self-test.

A three-zone page. The right area is filled during the lecture, the other two after it.

The five minutes that do the work

Take your notes however you like during the class. Then, as soon as possible afterwards — on the walk, on the bus, in the ten minutes before the next thing — do two things without looking at the page.

- 1 Write three or four *questions* in the left column that the notes would answer. Questions, not headings. “Why does raising the rate reduce demand?” rather than “Interest rates.”
- 2 Write two sentences at the bottom summarising the whole class in your own words, from memory, with the notes covered.

Every review session from then on is: cover the notes, read a question, answer out loud, check. You have turned a document into a test, which Chapter 14 will explain is the single most valuable transformation available to you.

Draw the thing

Drawing a concept — crudely, badly, as a rough sketch — produces substantially better recall than writing the word, and better than many richer-seeming encoding strategies. The effect is large and has replicated across many experiments, including with people who cannot draw and under severe time limits.^{81,82} Diagrams and concept maps also help, with smaller but real effects.^{83,84}

So when a process has stages, draw the stages. When two things are in tension, draw the tension. Fifteen seconds of bad drawing beats a neat paragraph.

HONEST NOTE

You have been told that handwriting beats typing. The original experiment did find that, attributing it to laptop users transcribing verbatim rather than processing.⁸⁵ A larger replication and extension failed to reproduce the advantage,⁸⁶ and so did a direct replication with an accompanying mini meta-analysis.⁸⁷

The defensible version is narrower: *verbatim transcription* is what hurts, on any device. If you type, type less than you hear. If handwriting naturally forces you to summarise, that is a point in its favour — but the pen is not magic.

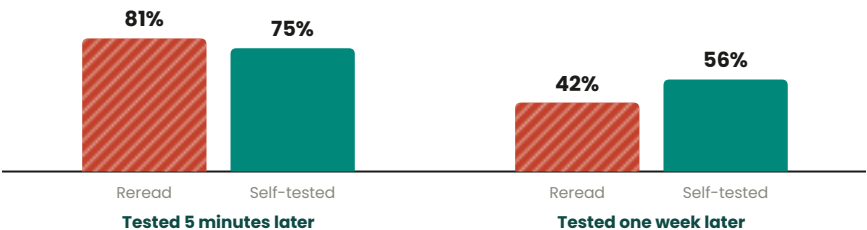
Four Methods That Beat Rereading

A large review rated most popular study techniques as low utility. These four were not among them.

In 2013 a group of cognitive psychologists reviewed ten widely used study techniques and rated each for how well the evidence supported it. Highlighting, summarising, rereading and imagery-based methods all came out *low* utility. Two techniques came out high: practice testing and distributed practice.⁸⁸

This matters because the low-utility techniques are the ones students overwhelmingly use. Surveys of study behaviour find rereading is the most commonly reported strategy by a wide margin, and that self-testing, where it happens at all, is used to check knowledge rather than to build it.^{89,90,91}

How much of a passage students could recall



Same material, same total time. Only the last session differed.

Rereading wins the afternoon and loses the semester.

Experiment 1 data, mean proportion of the passage recalled.⁹²

1. Test yourself instead of reviewing

Retrieving information from memory strengthens it far more than re-exposure does. The effect is one of the most replicated in the field: a meta-analysis of over two hundred experiments found a clear advantage for testing over restudying,^{93,94} it holds in real classrooms,⁹⁵ and in a head-to-head comparison, practice retrieval beat elaborate concept-mapping study on a later test.^{96,97}

Practically: close the book and write what you remember. Answer your own left-column questions. Use flashcards for facts and blank paper for arguments. The moment you feel yourself straining to recall is the moment the learning is happening.

2. Space it out

The same total study time produces more durable learning when it is split across separated sessions rather than massed into one. This has been demonstrated across hundreds of experiments,⁹⁸ and the optimal gap scales with how long you need to remember it — roughly, to hold something for a month, review it about a week apart.^{99,100,101}

3. Mix the problems up

Studying one topic until it is finished, then moving to the next, feels efficient. Interleaving — mixing problem types within a session — produces worse practice performance and substantially better test performance. In a randomised classroom trial, interleaved maths practice roughly doubled test scores a month later.^{102,103} The same pattern shows up for learning to distinguish categories.¹⁰⁴

This is the clearest example of a broader principle: the conditions that make studying feel fluent are frequently the conditions that make it least durable.^{105,106,107}

4. Explain it to yourself

Stopping to explain *why* a step follows, in your own words, improves learning across a wide range of subjects and ages.^{108,109} Generating an answer yourself, even a wrong one, beats reading the right one.^{110,111}

Why all four work

Working memory is small — classically described as around seven items, more recently as closer to four^{112,113} — and everything you learn has to pass through it. Instructional research built on that constraint finds that learning fails when material arrives faster than it can be organised, and succeeds when the learner is doing the organising.^{114,115,116} Testing, spacing, interleaving and self-explanation are four different ways of forcing that organisation to happen inside your head rather than on the page.

HONEST NOTE

These four methods all feel worse than rereading while you are doing them, and students consistently predict that the easier method taught them more.^{117,106} Expect that. The discomfort is not a sign you are doing it wrong; on this evidence it is close to a sign you are doing it right.

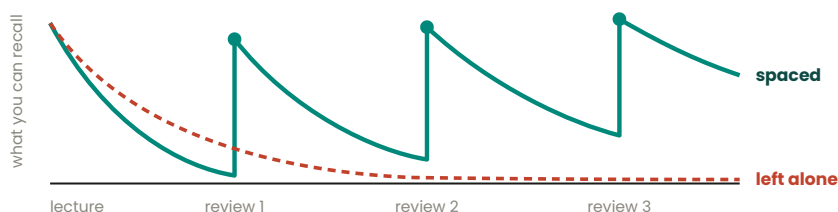
CHAPTER FIFTEEN

The Study Cycle

The four methods, assembled into something you can run every week without thinking about it.

Knowing that spacing and testing work changes nothing on its own, because the hard part is not the technique — it is having a schedule that produces the spacing automatically. Left to improvise, everyone masses their study, because massing is what an anxious person does the week before an exam.

What the schedule buys you



Each review is cheaper than the last and the forgetting after it is slower.

The gaps are not wasted time. The gaps are the method.

Schematic of the spacing effect, drawn from the meta-analytic pattern.^{98,99}

The cycle

- 1 Within a day of the lecture** — five minutes. Fill in the questions and the summary from Chapter 13. Do not reread. This is the cheapest slot in the whole system and the one people skip.

- 2 **Same week, in a review slot** — twenty minutes. Cover the notes, answer your questions out loud or on paper, check, and mark anything you could not produce.
- 3 **Two to three weeks later** — ten minutes. Only the marked items, plus one attempt to explain the whole topic in four sentences from memory.
- 4 **Before the exam** — full past papers under time, which is simply retrieval practice in its most realistic form.

Three review slots a week, twenty to thirty minutes each, will cover a full course load. That is about ninety minutes a week per subject — less time than most students spend rereading in a single evening, and it is the difference between recognising material in May and being able to produce it.

IN PRACTICE

Keep one page per topic with two columns: *can produce from memory* and *cannot yet*. Every review, items move left when you get them right twice running. Only the right-hand column gets reviewed.

This is deliberately low-tech. Spaced-repetition software does the same arithmetic more precisely and is excellent for vocabulary and facts. It is a poor fit for arguments and essay subjects, where the unit is not a card but an explanation. Template 4 at the back has the two-column page.

Do the difficult thing on purpose

One warning about the tidy version. Students who adopt spacing often turn it into a pleasant re-reading ritual on a schedule. The schedule is not the active ingredient. The active ingredient is the attempt to produce the answer before checking, and if you are not occasionally failing to produce it, the material is too easy or you are looking too soon.

Exams Without the Panic

Two weeks of ordinary method beats two nights of heroics, and there is one thing worth doing in the ten minutes before you start.

Test anxiety is common, it is not a personal weakness, and it does real measurable damage: across three decades of studies it is consistently associated with lower performance, and the relationship is strongest for students who are otherwise well prepared.¹¹⁸ The mechanism is thought to be occupancy — worry consumes the working memory the exam needs.

The ten minutes before

In a classroom experiment, students who spent ten minutes writing freely about their worries immediately before a high-stakes exam performed significantly better than a control group — and the benefit was concentrated in the students who were most anxious to begin with.¹¹⁹ Expressive writing more generally has a small but reliable effect across many outcomes.^{120,121}

It costs nothing and it is available in the corridor. Write, unedited, about what you are worried about. Then put it away.

The fortnight before

- **Past papers under timed conditions**, from the start of revision and not as a final check. This is retrieval practice in the exact form the exam will demand.
- **Mark them honestly**, against the actual criteria. Feedback is only useful if it tells you something you did not already believe.¹²²
- **Interleave subjects** in a session rather than devoting whole days to one.¹⁰²
- **Protect sleep first**. Not the night before — the whole fortnight. Consistency of sleep across the weeks before an exam predicted performance better than sleep on the final night did.¹²³

HONEST NOTE

The all-nighter is worth costing properly. Restricting sleep to six hours a night produced cognitive deficits that accumulated day after day without levelling off – and crucially, participants' own ratings of sleepiness barely rose, so they had almost no idea how impaired they were.¹²⁴ The feeling of coping is the first thing sleep loss takes.

If you are genuinely out of time, the arithmetic still favours sleeping. Three hours of rested recall beats six hours of unrested rereading, and Chapter 17 explains why some of the consolidation you need only happens while you are asleep.

DO THIS

Write the exam date on a calendar and count backwards in weeks, not days. Put one past paper in each week. Everything else – the notes, the readings, the panic – arranges itself around those fixed points.

The Body

Four chapters that have nothing to do with studying and determine most of how well you study. If you only fix one thing this semester, fix the first one.

CHAPTER SEVENTEEN

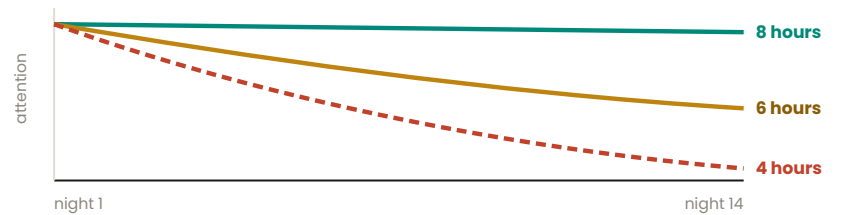
Sleep Is a Study Technique

Not a recovery activity that competes with studying. Part of the mechanism by which studying works.

While you sleep, memories formed during the day are reactivated and stabilised, and material that was fragile in the evening is measurably more durable in the morning. This is one of the better-established findings in neuroscience, demonstrated across a long line of human and animal work.^{125,126,127} Sleep also appears to support the restructuring that produces insight: participants who slept between learning a task and retesting were more than twice as likely to spot a hidden shortcut in it.¹²⁸

That is the argument in full. Studying without sleeping is not studying harder; it is interrupting the process halfway.

Sleep debt does not settle



Shape of a classic laboratory finding: short sleep accumulates rather than plateaus. **People on six hours reported feeling only slightly sleepy while performing badly.**

Shape of a landmark restriction study, not its exact values.¹²⁴

What the student data say

In a study that tracked students with wearables across a whole term, sleep duration, quality and consistency each predicted academic

performance — and irregular bedtimes predicted worse grades even among students who were getting enough hours overall. Sleep on the single night before an exam had no relationship with the result; sleep across the preceding weeks did.¹²³

Student sleep is also genuinely bad at a population level: in a survey of over a thousand undergraduates, the large majority reported poor-quality sleep, and self-reported stress and emotional disturbance were the strongest predictors.^{129,130}

It also runs the other way. When collegiate basketball players extended their sleep toward ten hours a night for several weeks, their sprint times, shooting accuracy, mood and daytime alertness all improved.¹³¹ Most students are not athletes, but the principle transfers: for a chronically short-slept person, more sleep is an intervention, not a luxury.

The five things that actually move it

- 1 **A fixed wake time, seven days a week.** This anchors the whole rhythm and it is the one to fight for. A weekend lie-in of three hours produces something close to jet lag, and that misalignment is associated with worse academic performance.^{132,133}
- 2 **Light in the morning.** Outside, within an hour of waking, for ten minutes. It is the strongest available signal for setting the clock.
- 3 **Caffeine cut-off.** The next chapter deals with this properly.
- 4 **A wind-down that is not a screen.** Evening light exposure delays the clock and reduces next-morning alertness,¹³⁴ though reviews of blue-light-blocking interventions specifically find modest and inconsistent effects.¹³⁵ The content is probably doing more than the wavelength.
- 5 **The bed is for sleep.** Working in bed teaches your body that bed is a place where you lie awake thinking.

If those are in place and you still cannot sleep, that is a medical question and not a discipline question. Psychological sleep interventions for students — largely cognitive-behavioural — produce reliable improvements, and campus services often run them.¹³⁶

HONEST NOTE

You cannot train yourself to need less sleep. In the restriction study above, participants on six hours drifted steadily downward for two weeks while reporting they felt only slightly sleepy. What people call “getting used to it” is the loss of the ability to notice.

Some people genuinely run late — chronotype is partly biological, and evening types tend to get slightly lower grades in institutions that start early, which is a scheduling mismatch rather than a defect.^{137,138} If you are one, schedule your deep blocks late and stop apologising for it. The fixed wake time still applies.

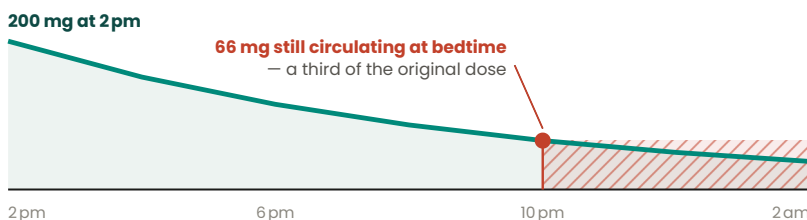
CHAPTER EIGHTEEN

Caffeine, Honestly

A genuinely useful drug with one specific failure mode, which is that it is still there at midnight.

Caffeine works, and this book is not going to tell you to give it up. What it will tell you is the number that most people have never been given: caffeine has a half-life of roughly five hours in a typical adult, which means half the dose is still circulating five hours later and a quarter of it ten hours later.

A single afternoon coffee, followed home



Assumes a five-hour half-life; between people it ranges from about three hours to seven.

Which is why the same latte ruins one person's night and not their friend's.

Modelled from a 200 mg dose and a five-hour half-life.¹³⁹

The experiment that matters here gave people 400 mg of caffeine at bedtime, three hours before, or six hours before. Even the six-hour dose significantly disrupted sleep, cutting total sleep time by more than an hour — and, as with sleep restriction, participants did not reliably notice the disruption in their own subjective ratings.¹³⁹ Systematic reviews since have reached similar conclusions about dose and timing.^{140,141}

The rules that follow

- **Set a cut-off eight hours before bed** and treat it as a hard line. For a midnight bedtime, that is four in the afternoon. Six hours is the evidenced minimum; eight gives you margin for being a slow metaboliser.
- **Do not use it to paper over short sleep.** Caffeine restores alertness reasonably well and restores judgement and learning much less well, so the version of you that feels fine at 2 am is making decisions with equipment that is not fine.
- **Watch the total.** Energy drinks and pre-workout supplements are frequently 200 mg or more per can, and they are easy to lose count of.
- **Delay the first cup** if you wake up needing one immediately — that is usually the tail of yesterday's dose and short sleep, not a morning requirement.

The nap, done properly

A short nap is the legitimate alternative to a fourth coffee. Naps of roughly ten to twenty minutes reliably improve alertness and performance for a few hours without much grogginess; longer naps give a bigger benefit but come with a period of disorientation on waking, and anything after about three in the afternoon starts eating into the pressure you need for the night.^{142,143}

IN PRACTICE

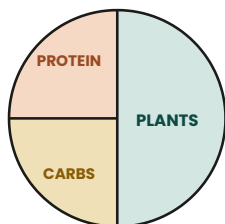
If you are genuinely flattened at two in the afternoon, twenty minutes flat with an alarm will do more for the next three hours than another coffee — and unlike the coffee, it is fully cleared by bedtime.

Food That Holds Up

Not a diet chapter. A short answer to why three in the afternoon keeps happening.

Student food is shaped by three constraints — money, time and a kitchen shared with strangers — and no chapter that ignores those is worth reading. So this one is about shape rather than rules, and about the small number of findings that are strong enough to act on.

What a meal that holds up looks like



Half the plate: plants

Vegetables, fruit, beans, lentils. Fibre is the part that keeps the next two hours flat.

A quarter: protein

Eggs, dairy, fish, meat, tofu, pulses.

A quarter: slow carbohydrate

Whole grains, oats, potatoes with the skin on.

A shape, not a recipe. Hit it roughly, most of the time, from whatever is available.

Something you can do in a canteen, a hostel kitchen, or a shop at 11 pm.

A shape to aim at, not a prescription or a calorie target.

The one finding with a randomised trial behind it

In a randomised controlled trial, adults with moderate to severe depression who received dietary support toward a Mediterranean-style pattern — more vegetables, legumes, fish, whole grains and olive oil, less refined and processed food — showed substantially greater improvement in symptoms over twelve weeks than a matched social-support control.¹⁴⁴ A meta-analysis of dietary improvement trials found a small but significant effect on depressive symptoms overall.¹⁴⁵ Higher consumption of ultra-processed food is consistently associated with worse mental health, though that evidence is observational.¹⁴⁶

None of this makes food a treatment. It does mean the direction is real and the cost of moving in it is low.

The afternoon crash

Here the honest answer is less satisfying than the internet's. A meta-analysis of carbohydrate effects on mood found no evidence of the classic "sugar rush"; if anything, carbohydrate intake was followed by *lower* alertness and more fatigue within the hour.¹⁴⁷ Reviews of glycaemic index and cognition find mixed and inconsistent results.¹⁴⁸

So: a large fast-carbohydrate lunch will not spike you and is quite likely to flatten you. A lunch with protein and fibre in it holds the afternoon better. That is about as strong a claim as the evidence supports, and it is enough to act on.

Breakfast and water

Breakfast is genuinely associated with better cognitive and academic outcomes, most clearly among students who are undernourished; among well-fed students the benefits are smaller and less consistent.^{149,150} If you are not hungry in the morning, that is allowed. If you routinely go until three in the afternoon on coffee alone, that is a different matter.

Mild dehydration — the ordinary kind, well before thirst becomes urgent — has repeatedly been shown to worsen mood, increase perceived effort and impair attention in young adults.^{151,152,153} A bottle on the desk is one of the highest-ratio interventions in this entire book.

HONEST NOTE

Two things students are sold. Omega-3 supplements for cognition: a systematic review of healthy populations found no consistent benefit.¹⁵⁴ And alcohol: heavier drinking is reliably associated with worse academic outcomes in longitudinal student data, and the mechanism is largely indirect — missed classes, lost mornings, wrecked sleep — rather than direct brain damage.^{155,156}

Movement as Maintenance

The evidence for exercise and mood is much stronger than the evidence for exercise and grades. Both are worth having.

Exercise is the intervention students most often cut first when things get busy, and it is close to the last thing that should go. The case for it is not that it makes you clever. It is that it is one of the better-supported things available for the mood and stress problems that make studying impossible.

A week that clears the bar

Most days A walk, 20–30 minutes	Mood, sleep, breaking up sitting
3× a week Something that makes you breathe hard	The clearest cognitive and mood effects
2× a week Something heavy, 20–30 minutes	Strength, and its own effect on low mood

Roughly the public-health floor, split three ways.
Anything above zero is most of the gain. The floor is not the target.

Floor values from public-health physical-activity guidance.¹⁵⁷

Mood first, because the evidence is best there

A large network meta-analysis of randomised trials found exercise to be an effective treatment for depression, with walking or jogging, yoga and strength training all showing meaningful benefits, and larger effects at higher intensities.¹⁵⁸ Resistance training specifically reduced depressive symptoms across randomised trials in a separate analysis, including in people without a diagnosis.^{159,160} An umbrella review across dozens of meta-analyses concluded that physical activity improves depression, anxiety and distress across populations.¹⁶¹

These are not small or fringe results. If exercise were a pill, its effect on low mood would be considered a good outcome for a pill.

And cognition, with the caveat attached

A single bout of moderate exercise produces a small, short-lived improvement in cognitive performance, clearest for executive function in the period afterwards.^{162,163} Exercise training programmes improve cognitive function in adults across a range of modalities.¹⁶⁴

HONEST NOTE

The most-shared study in this area found that a year of aerobic exercise increased hippocampal volume by about two per cent in older adults, reversing a couple of years of age-related loss.¹⁶⁵ It is frequently presented as proof that running grows your memory. Published commentary on that same paper pointed out that memory improvement was not in fact statistically tied to the volume change, and that the control group improved on the memory task too.¹⁶⁶

So: exercise for mood, sleep, stress and energy, all of which have good evidence and all of which improve your studying. Treat the brain-growth version as a bonus that may or may not be real.

The unglamorous part

Long unbroken sitting has its own costs independent of whether you exercise, and breaking it up with short walks measurably improves metabolic markers.^{167,168} A walk between study blocks is doing three jobs at once: the attention restoration from Chapter 11, the mood effect above, and this one. It remains the best-value fifteen minutes in a student day.

The Mind

Three chapters on the things that decide whether any of the preceding forty pages get used at all.

CHAPTER TWENTY-ONE

Stress, and What Actually Helps

A short, careful chapter. It is not a substitute for talking to someone, and it says so more than once.

Two things are true at once. Some stress in a demanding semester is normal, useful and survivable. And a large fraction of students are carrying rather more than that: in a survey across eight countries, about a third of first-year university students screened positive for at least one common mental-health condition in the previous year.^{169,170} If you are struggling, you are not an outlier and you are not failing at being a student.

The first year is also when risk is highest: in longitudinal data, a meaningful minority of students who arrive without a diagnosis develop one during their first year at university.¹⁷¹ Knowing that in advance is not alarming, it is useful — it makes the early, unglamorous move of asking for help look like what it is, which is ordinary.

What follows is a short list of things with reasonable evidence behind them, and a much more important paragraph at the end about when this list is not the right tool.

Pick by how long you have**2 minutes**

Slow exhales, longer out than in, for two minutes. Stand up. Look out a window.

10 minutes

Write the worry down in full, unedited, then close the book. Walk outside.

30 minutes

Exercise hard enough to breathe. Or time with a person not on your course.

These lower the temperature. They do not treat anything, and are not meant to.

If the temperature does not come down for weeks, that is the signal to get proper help.

Each item has trial evidence behind it; none of them is a treatment.^{172,121}

Things that hold up

- **Slow breathing with a long exhale.** In a randomised trial comparing three breathing practices with mindfulness meditation, five minutes a day of cyclic sighing – two inhales, one long exhale – produced the largest improvement in mood and the greatest reduction in physiological arousal over a month.¹⁷² Five minutes. Free. Works in a corridor.
- **Writing it down.** Expressive writing has small but reliable benefits across many outcomes,^{121,120} and the exam-specific version in Chapter 16 is one of the better-demonstrated brief interventions in education.¹¹⁹
- **Moving.** Chapter 20 covers this. It is probably the single most evidenced item on the list.^{158,161}
- **Structured psychological therapy.** Cognitive behavioural approaches have the largest and most consistent evidence base of any psychological treatment for anxiety and depression,¹⁷³ and internet-delivered versions designed for students produce real improvements in symptoms.¹⁷⁴ Many universities provide these at no cost.

HONEST NOTE

Mindfulness is genuinely helpful and routinely oversold. The most careful review found moderate evidence that meditation programmes reduce anxiety, depression and pain – with effect sizes around 0.3, comparable to what an antidepressant achieves in a primary-care population – and no good evidence that it beats active alternatives

like exercise.^{11,175} In student populations specifically, effects are positive but modest.¹²

Gratitude journalling is similar: real, small, and smaller than its popularity implies.^{13,14,176} Worth eight minutes a week. Not a plan.

When this list is the wrong tool

Everything above is for ordinary pressure. Some things are not ordinary pressure, and the difference is mostly about duration and reach: a bad fortnight is a bad fortnight, but several weeks in which you cannot enjoy things you used to, cannot sleep or cannot stop sleeping, cannot make yourself go, or find your thoughts turning frightening — that is not a productivity problem and no chapter can fix it.

If that is where you are, please talk to someone qualified: your university counselling service, a doctor, or a local helpline. Reaching out early is the single most effective thing in this book, and the fact that it does not feel like “productivity” is precisely why it gets postponed. It is not weakness and it is not an admission of anything. It is the same category of decision as going to a doctor about a persistent cough.

CHAPTER TWENTY-TWO

The People Part

The most commonly sacrificed thing in a busy semester, and one of the least sensible to sacrifice.

When a term gets heavy, most students cut in the same order: exercise, sleep, friends, food. Friends go early because the cost is invisible — nothing breaks on the day you skip, and nobody sends you a warning email.

The long-run data are hard to ignore. Pooling 148 studies covering more than three hundred thousand people, individuals with stronger social relationships had a roughly fifty per cent greater likelihood of survival over the follow-up period — an effect comparable in size to well-established risk factors.¹⁷⁷ Loneliness and social isolation carry

their own independent risk.¹⁷⁸ And loneliness at university is common rather than exceptional, particularly in first year and among students who have moved.¹⁷⁹

Three practical moves

- **Anchor one social thing to the calendar**, the way you anchored the deep blocks. Something recurring, low-effort and not dependent on anyone organising it each week. Spontaneity does not survive a heavy term; a standing arrangement does.
- **Study with people, properly.** Small-group learning in science and engineering courses improves achievement and persistence across a large body of studies,¹⁸⁰ and active, participatory formats outperform passive lectures substantially.¹⁸¹ The mechanism is the same one from Chapter 14: explaining something to another person is retrieval practice with social pressure attached.
- **Ask for help earlier than feels reasonable.** Office hours, the academic skills service, the note-taking of the person two rows in front. Nearly every student overestimates how unusual their confusion is.

IN PRACTICE

A working study group is three or four people, a fixed hour, and a rule that everyone arrives having attempted the material. Without that last rule it becomes a social event with textbooks present, which is a fine thing to have but should be scheduled as itself.

On feeling like the impostor

The suspicion that you were admitted by mistake and will shortly be found out is close to universal. A systematic review across dozens of studies found impostor feelings to be widespread among students and professionals, associated with anxiety and burnout, and frequently experienced by high performers.¹⁸²

A brief intervention that simply told first-year students that worries about belonging are common and tend to fade produced measurable improvements in grades and wellbeing years later.^{183,184}

There is not much to do with this information except hold it: the feeling is information about a transition, not about you.

CHAPTER TWENTY-THREE

Motivation You Don't Have to Manufacture

Motivation is not a mood you summon. It is a by-product of three conditions, and you can engineer all three.

The advice to “stay motivated” is useless because it treats motivation as a weather system. The more productive framing is that motivation reliably appears when three conditions are met, and reliably disappears when they are not.

Three conditions



It is your choice,
not something done to you



You can see yourself
getting better at it



Someone you respect
is in it with you

Motivation that does not need manufacturing every morning

Meet all three and motivation mostly looks after itself. Miss one and it does not.

The three needs of self-determination theory, as they apply to studying.^{185,186}

Autonomy: make it yours

Even inside a fixed curriculum there is more choice than it looks. Which essay question. Which example to work through. Which order to study in. When your blocks happen. Students who experience their studying as chosen rather than imposed show better persistence and wellbeing.¹⁸⁶ So exercise the choices you do have, visibly, including the small ones — it is the felt sense of authorship that matters, not the size of the decision.

Competence: make progress visible

Progress you cannot see does not motivate. This is the real argument for the two-column page in Chapter 15 and the habit ladder in Chapter 4: both convert invisible improvement into something you can look at. Monitoring progress has meta-analytic support as an intervention in its own right, and the effect is stronger when the record is physical and public.⁴⁰

Relatedness: do it near someone

The study group, the library at the same time as a friend, the shared deadline. Chapter 22 makes the case. It is also, not coincidentally, the dial that makes the other two easier to hold.

HONEST NOTE

Grit — sustained passion and perseverance — was presented for a decade as a major predictor of success. A meta-analysis of the whole literature found its relationship with performance to be weak, found that it is barely distinguishable from ordinary conscientiousness, and found little evidence that grit interventions change anything.^{187,188}

Which is a relief rather than a loss. You do not have to become a more heroic person. You have to arrange three conditions, and conditions can be arranged.

Putting It Together

Everything above is a menu. This is the order to eat it in, and what it is all for.

CHAPTER TWENTY-FOUR

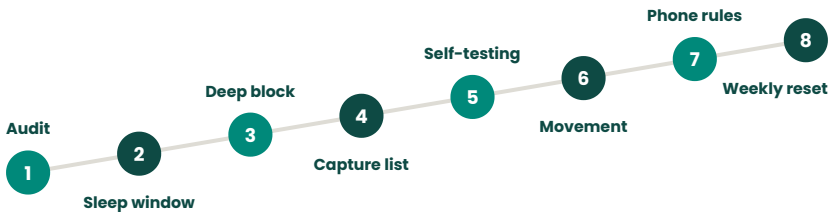
Eight Weeks, One Piece at a Time

One addition per week. Nothing is removed to make room, and week one costs you almost nothing.

If you try to install this book in a weekend you will have none of it by the following Friday. That is not pessimism; it is the direct implication of Chapter 4. Habits form at a median of around two months for a single behaviour,³² so eight new behaviours started simultaneously is eight incomplete habits fighting for the same attention.

So here is the sequence. Each week you add exactly one thing and keep everything from the previous weeks. If a week goes badly, you repeat it rather than skipping ahead. Nobody is marking this.

Eight weeks, one addition each



Nothing is removed to make room, and nothing starts in week one except the audit.
Sleep comes before study method, because study method does not work on five hours.

The order is an argument from what depends on what, not a tested sequence.

The eight weeks

- 1 **Audit.** Three days of logging, then add it up. Change nothing else. Chapter 1, Template 1.

- 2 **Sleep window.** Pick a fixed wake time and hold it seven days a week. This is the hardest week and the highest-yield one. Chapter 17.
- 3 **One deep block.** One, not two. Ninety minutes, in a good hour from the audit, phone in another room. Chapters 5 and 12.
- 4 **The capture list.** One inbox, emptied in a ten-minute weekly review on a fixed day. Chapter 6.
- 5 **Self-testing.** Convert one course's notes to the question format and run two review slots. Chapters 13–15.
- 6 **Movement.** Three sessions, however small. A walk counts. Chapter 20.
- 7 **Phone rules.** Notifications off, phone out of the room during blocks, one scheduled blocker. Chapter 10.
- 8 **The weekly reset.** Same hour every week: review the skeleton, empty the list, plan the review slots, check the three needs. Chapters 2 and 5.

DO THIS

Write the eight week-numbers down the margin of a page with a date beside each, starting this coming Monday. Put the page where you will see it. That single sheet is the plan; the rest of this book is the explanation.

HONEST NOTE

Nobody has run a randomised trial of this specific eight-week sequence, and I am not going to pretend otherwise. Each component has evidence behind it; the ordering is an argument, based on what depends on what. Treat the order as a sensible default and swap items if your situation obviously demands it — with one exception. Keep sleep at week two. Everything downstream of it performs worse without it.

What the Extra Time Is For

A short final chapter, because the point of the whole thing is not more hours of work.

If the eight weeks go well, you will end up with something unfamiliar: hours that are genuinely free, and free without guilt attached, because the things that needed doing are already done or already scheduled. Most books like this one stop just before that point, which is odd, because that is the only reason to do any of it.

There is a failure mode here worth naming. Having built a system that produces spare time, a certain kind of person immediately fills it with more work, on the grounds that they now *can*. Within a month the spare time is gone, the system is under the same pressure as before, and the only thing that has changed is the volume of output. This is not a win. It is the same trap with better tooling.

Spend it on the things that are their own reason

The recurring finding in this book's last three parts is that the durable inputs to doing well are sleep, movement, other people and some sense that your life is yours.^{177,158,186} Those are not recovery from the real thing. Over a three-year degree they largely *are* the real thing, and the coursework is what you do in between.

So: the friendship that requires an actual afternoon. The skill nobody is grading. The thing you were interested in before it became a module. Sitting somewhere with no plan for ninety minutes. The evidence for that last one is thin, and I am recommending it anyway.

The short version of the whole book

You have more hours than you think, and less uninterrupted attention. Structure beats discipline, and small structures beat ambitious ones. What feels like effective studying usually is not; the methods that work feel harder and are. Sleep is part of learning, not a competitor to it. Almost nothing here works in a weekend and almost all of it works in a term.

And the last one, which is the reason for the rest: none of this is supposed to make you into a more efficient machine. It is supposed to buy back the parts of a semester that are worth having — which is a smaller, more achievable, and much better goal than the one you were sold.

Start on Monday. Start with the audit. It takes three days and changes nothing, which is exactly why it is the right place to begin.

If you only do five things

Because most people will not do twenty-five. In descending order of what the evidence supports per unit of effort:

- 1 **Fix your wake time.** The same hour seven days a week, weekends included. Sleep duration, quality and consistency each independently predict academic performance, and consistency is the one students never touch.^{123,124}
- 2 **Test yourself instead of rereading.** Close the book, write what you remember, then check. It feels worse and works considerably better, and the gap widens the longer you need to remember.^{92,93,88}
- 3 **Space it.** Three twenty-minute review slots a week beats one three-hour session, for the same total time.^{98,99}
- 4 **Put the phone in another room** during one ninety-minute block a day. Not on silent. Another room.^{61,69,54}
- 5 **Move three times a week**, at an intensity that makes you breathe. Mostly for your mood, which is what makes everything else possible.^{158,161}

That is the book. Everything else is detail, and the detail is only worth reading once one of these five is actually running.

Six things you can stop believing

Each of these is repeated constantly in student advice. Each has been tested. The short version of what the testing found is underneath.

1. “Find your learning style.”

The claim is that visual, auditory or kinaesthetic learners do better when taught in their preferred style. A landmark review found almost no studies using the design capable of testing that claim, and the few that did failed to support it;¹ a later well-designed experiment matching instruction to measured style found no benefit.² The belief remains near-universal among students and teachers alike.¹⁸⁹ **Use instead:** match the method to the *material*, not to yourself.

2. “Learn to speed-read.”

An extensive review concluded that the speed-comprehension trade-off is real and unavoidable: the techniques that increase words per minute do so by sacrificing understanding, and the main honest route to reading faster is knowing more about the subject already.¹⁹⁰ **Use instead:** read less, more slowly, and test yourself on it.

3. “Classical music makes you smarter.”

A meta-analysis of nearly forty studies found the effect on spatial task performance to be negligible, and no larger for Mozart than for any other stimulating listening.¹⁹¹ Background music with words also reliably impairs reading.⁷⁰ **Use instead:** silence, or something without lyrics.

4. “Decision fatigue — judges grant parole after lunch.”

The famous study is real,¹⁹² but commentators pointed out that cases were not ordered randomly — unrepresented prisoners were scheduled later in each session¹⁹³ — and simulations showed the effect size is far too large to be a genuine depletion effect.¹⁹⁴ **Use instead:** schedule hard work when you have protected the time, not when your tank is theoretically full.

5. “Ten thousand hours.”

The original research described deliberate practice in elite performers and never claimed a universal threshold.⁴ A meta-analysis

across domains found practice accounted for roughly a quarter of the variance in games, a fifth in music and sport, and around four per cent in education.³ **Use instead:** practice matters and it is not the only thing; the quality of what you practise matters more than the total.

6. “Willpower runs out, so use it early.”

Two large coordinated replications found the ego-depletion effect to be indistinguishable from zero.^{5,6} And the best-known experiment on self-imposed deadlines is being retracted after evidence of data fabrication, with a careful replication finding a negligible effect.^{7,8,9} **Use instead:** structure, so that the decision is not being made at all.

None of this means research is untrustworthy. It means that popular retellings age badly, and that a book making claims about your study habits owes you the version with the corrections in it.

Template 1 • The 168-hour audit

Three days. Write it as it happens, not from memory. Round to the nearest fifteen minutes. Do not tidy it up — a flattering log tells you nothing. See Chapter 1.

TIME	DAY 1	DAY 2	DAY 3
06:00			
07:00			
08:00			
09:00			
10:00			
11:00			
12:00			
13:00			
14:00			
15:00			
16:00			
17:00			
18:00			
19:00			
20:00			
21:00			
22:00			
23:00			

DAY FOUR: ADD IT UP

Fixed hours

Committed hours

Discretionary

My best hours are

The surprise was

Template 2 • The weekly skeleton

Fill in only the anchors: a sleep window, two deep blocks, two or three review slots, and protected off-time. Leave the rest blank on purpose. See Chapter 5.

	MON	TUE	WED	THU	FRI	SAT	SUN
Early							
Late morning							
Afternoon							
Early evening							
Late evening							

MY THREE NEEDS THIS SEMESTER

1

2

3

Weekly reset is

Template 3 • The habit ladder

One behaviour. Five rungs. Each rung is held until it is boring before the next is added, and you never add two at once. See Chapter 4.

THE BEHAVIOUR

When

then I will

	WHAT IT IS	STARTED	HELD UNTIL
Rung 1			
Rung 2			
Rung 3			
Rung 4			
Rung 5			

IF IT BREAKS

Drop back to rung

and restart on

Template 4 • The study cycle planner

One page per topic. An item moves left only after you have produced it from memory twice running. Only the right-hand column gets reviewed. See Chapter 15.

Topic

CAN PRODUCE FROM MEMORY	CANNOT YET — REVIEW THESE

REVIEW DATES

Within a day

This week

In 2–3 weeks

Past paper

Template 5 • The session log

One row per deep block. The objective is written *before* you start and is a single specific thing. Count the interruptions honestly; the number is the point. See Chapter 12.

DATE	BLOCK	ONE OBJECTIVE, WRITTEN BEFORE STARTING	MINS	INTERRUPT.

AT THE END OF THE WEEK

Blocks completed

Average interruptions

Best time of day

One change for next week

References

194 sources, numbered in the order they appear in the text. Where a finding has been contested, replicated or retracted, the challenging work is listed alongside the original rather than in place of it.

1. Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2008). Learning styles: Concepts and evidence. *Psychological Science in the Public Interest*, 9(3), 105–119.
2. Rogowsky, B. A., Calhoun, B. M., & Tallal, P. (2015). Matching learning style to instructional method: Effects on comprehension. *Journal of Educational Psychology*, 107(1), 64–78.
3. Macnamara, B. N., Hambrick, D. Z., & Oswald, F. L. (2014). Deliberate practice and performance in music, games, sports, education, and professions: A meta-analysis. *Psychological Science*, 25(8), 1608–1618.
4. Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363–406.
5. Hagger, M. S., et al. (2016). A multilab preregistered replication of the ego-depletion effect. *Perspectives on Psychological Science*, 11(4), 546–573.
6. Vohs, K. D., et al. (2021). A multisite preregistered paradigmatic test of the ego-depletion effect. *Psychological Science*, 32(10), 1566–1581.
7. Arieli, D., & Wertenbroch, K. (2002). Procrastination, deadlines, and performance: Self-control by precommitment. *Psychological Science*, 13(3), 219–224. (Retraction requested by both authors following an investigation of the data; see refs. below.)
8. Simonsohn, U., Simmons, J., & Nelson, L. (2026). Artificial deadlines (Part 1): Evidence of fraud in an influential study about procrastination. *Data Colada*, post 138.
9. Hyndman, K., & Bisin, A. (2026). Replication of 'Procrastination, deadlines, and performance: Self-control by precommitment.' *Psychological Science*. Advance online publication.
10. Aeon, B., Faber, A., & Panaccio, A. (2021). Does time management work? A meta-analysis. *PLOS ONE*, 16(1), e0245066.
11. Goyal, M., et al. (2014). Meditation programs for psychological stress and well-being: A systematic review and meta-analysis. *JAMA Internal Medicine*, 174(3), 357–368.
12. Dawson, A. F., et al. (2020). Mindfulness-based interventions for university students: A systematic review and meta-analysis of randomised controlled trials. *Applied Psychology: Health and Well-Being*, 12(2), 384–410.
13. Cregg, D. R., & Cheavens, J. S. (2021). Gratitude interventions: Effective self-help? A meta-analysis of the impact on symptoms of depression and anxiety. *Journal of Happiness Studies*, 22, 413–445.
14. Davis, D. E., et al. (2016). Thankful for the little things: A meta-analysis of gratitude interventions. *Journal of Counseling Psychology*, 63(1), 20–31.
15. Buehler, R., Griffin, D., & Ross, M. (1994). Exploring the 'planning fallacy': Why people underestimate their task completion times. *Journal of Personality and Social Psychology*, 67(3), 366–381.
16. Buehler, R., Griffin, D., & Peetz, J. (2010). The planning fallacy: Cognitive, motivational, and social origins. *Advances in Experimental Social Psychology*, 43, 1–62.
17. Zhu, M., Yang, Y., & Hsee, C. K. (2018). The mere urgency effect. *Journal of Consumer Research*, 45(3), 673–690.
18. Credé, M., Roch, S. G., & Kieszczynka, U. M. (2010). Class attendance in college: A meta-analytic review of the relationship of class attendance with grades and student characteristics. *Review of Educational Research*, 80(2), 272–295.
19. Credé, M., & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science*, 3(6), 425–453.
20. Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin*, 130(2), 261–288.
21. Schneider, M., & Preckel, F. (2017). Variables associated with achievement in higher education: A systematic review of meta-analyses. *Psychological Bulletin*, 143(6), 565–600.
22. Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education*, 79(5), 540–563.
23. Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, 17, 63–84.
24. Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*. W. H. Freeman.

25. Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin*, 138(2), 353–387.
26. Breines, J. G., & Chen, S. (2012). Self-compassion increases self-improvement motivation. *Personality and Social Psychology Bulletin*, 38(9), 1133–1143.
27. Ferrari, M., Hunt, C., Harrysunker, A., Abbott, M. J., Beath, A. P., & Einstein, D. A. (2019). Self-compassion interventions and psychosocial outcomes: A meta-analysis of RCTs. *Mindfulness*, 10, 1455–1473.
28. Neff, K. D. (2003). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, 2(2), 85–101.
29. Yeager, D. S., et al. (2019). A national experiment reveals where a growth mindset improves achievement. *Nature*, 573, 364–369.
30. Sisk, V. F., Burgoyne, A. P., Sun, J., Butler, J. L., & Macnamara, B. N. (2018). To what extent and under which circumstances are growth mind-sets important to academic achievement? Two meta-analyses. *Psychological Science*, 29(4), 549–571.
31. Macnamara, B. N., & Burgoyne, A. P. (2023). Do growth mindset interventions impact students' academic achievement? A systematic review and meta-analysis with recommendations for best practices. *Psychological Bulletin*, 149(3–4), 133–173.
32. Lally, P., van Jaarsveld, C. H. M., Potts, H. W. W., & Wardle, J. (2010). How are habits formed: Modelling habit formation in the real world. *European Journal of Social Psychology*, 40(6), 998–1009.
33. Wood, W., & Neal, D. T. (2007). A new look at habits and the habit–goal interface. *Psychological Review*, 114(4), 843–863.
34. Wood, W., & Rünger, D. (2016). Psychology of habit. *Annual Review of Psychology*, 67, 289–314.
35. Gardner, B., Lally, P., & Wardle, J. (2012). Making health habitual: The psychology of 'habit-formation' and general practice. *British Journal of General Practice*, 62(605), 664–666.
36. Gardner, B., & Rebar, A. L. (2019). Habit formation and behavior change. *Oxford Research Encyclopedia of Psychology*.
37. Gollwitzer, P. M., & Sheeran, P. (2006). Implementation intentions and goal achievement: A meta-analysis of effects and processes. *Advances in Experimental Social Psychology*, 38, 69–119.
38. Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, 54(7), 493–503.
39. Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology*, 74(5), 1252–1265.
40. Harkin, B., Webb, T. L., Chang, B. P. I., Prestwich, A., Conner, M., Kellar, I., Benn, Y., & Sheeran, P. (2016). Does monitoring goal progress promote goal attainment? A meta-analysis of the experimental evidence. *Psychological Bulletin*, 142(2), 198–229.
41. Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57(9), 705–717.
42. Claessens, B. J. C., van Eerde, W., Rutte, C. G., & Roe, R. A. (2007). A review of the time management literature. *Personnel Review*, 36(2), 255–276.
43. Masicampo, E. J., & Baumeister, R. F. (2011). Consider it done! Plan making can eliminate the cognitive effects of unfulfilled goals. *Journal of Personality and Social Psychology*, 101(4), 667–683.
44. Storm, B. C., Stone, S. M., & Benjamin, A. S. (2017). Using the internet to access information inflates future use of the internet to access other information. *Memory*, 25(6), 717–723.
45. Loh, K. K., & Kanai, R. (2016). How has the internet reshaped human cognition? *The Neuroscientist*, 22(5), 506–520.
46. Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin*, 133(1), 65–94.
47. Steel, P., & König, C. J. (2006). Integrating theories of motivation. *Academy of Management Review*, 31(4), 889–913.
48. Sirois, F., & Pychyl, T. (2013). Procrastination and the priority of short-term mood regulation: Consequences for future self. *Social and Personality Psychology Compass*, 7(2), 115–127.
49. Sirois, F. M., Molnar, D. S., & Hirsch, J. K. (2017). A meta-analytic and conceptual update on the associations between procrastination and multidimensional perfectionism. *European Journal of Personality*, 31(2), 137–159.
50. Curran, T., & Hill, A. P. (2019). Perfectionism is increasing over time: A meta-analysis of birth cohort differences from 1989 to 2016. *Psychological Bulletin*, 145(4), 410–429.
51. Kim, K. R., & Seo, E. H. (2015). The relationship between procrastination and academic performance: A meta-analysis. *Personality and Individual Differences*, 82, 26–33.

52. Milkman, K. L., Minson, J. A., & Volpp, K. G. M. (2014). Holding the Hunger Games hostage at the gym: An evaluation of temptation bundling. *Management Science*, 60(2), 283–299.
53. Dai, H., Milkman, K. L., & Riis, J. (2014). The fresh start effect: Temporal landmarks motivate aspirational behavior. *Management Science*, 60(10), 2563–2582.
54. Leroy, S. (2009). Why is it so hard to do my work? The challenge of attention residue when switching between work tasks. *Organizational Behavior and Human Decision Processes*, 109(2), 168–181.
55. Monsell, S. (2003). Task switching. *Trends in Cognitive Sciences*, 7(3), 134–140.
56. Rubinstein, J. S., Meyer, D. E., & Evans, J. E. (2001). Executive control of cognitive processes in task switching. *Journal of Experimental Psychology: Human Perception and Performance*, 27(4), 763–797.
57. Mark, G., Gudith, D., & Klocke, U. (2008). The cost of interrupted work: More speed and stress. *Proceedings of CHI 2008*, 107–110.
58. Ophir, E., Nass, C., & Wagner, A. D. (2009). Cognitive control in media multitaskers. *Proceedings of the National Academy of Sciences*, 106(37), 15583–15587.
59. Wiradhany, W., & Nieuwenstein, M. R. (2017). Cognitive control in media multitaskers: Two replication studies and a meta-analysis. *Attention, Perception, & Psychophysics*, 79, 2620–2641.
60. Uncapher, M. R., & Wagner, A. D. (2018). Minds and brains of media multitaskers: Current findings and future directions. *Proceedings of the National Academy of Sciences*, 115(40), 9889–9896.
61. Stothart, C., Mitchum, A., & Yehner, C. (2015). The attentional cost of receiving a cell phone notification. *Journal of Experimental Psychology: Human Perception and Performance*, 41(4), 893–897.
62. Kushlev, K., Proulx, J., & Dunn, E. W. (2016). 'Silence your phones': Smartphone notifications increase inattention and hyperactivity symptoms. *Proceedings of CHI 2016*, 1011–1020.
63. Fitz, N., Kushlev, K., Jagannathan, R., Lewis, T., Paliwal, D., & Ariely, D. (2019). Batching smartphone notifications can improve well-being. *Computers in Human Behavior*, 101, 84–94.
64. Sana, F., Weston, T., & Cepeda, N. J. (2013). Laptop multitasking hinders classroom learning for both users and nearby peers. *Computers & Education*, 62, 24–31.
65. Carter, S. P., Greenberg, K., & Walker, M. S. (2017). The impact of computer usage on academic performance: Evidence from a randomized trial at the United States Military Academy. *Economics of Education Review*, 56, 118–132.
66. Amez, S., & Baert, S. (2020). Smartphone use and academic performance: A literature review. *International Journal of Educational Research*, 103, 101618.
67. Ward, A. F., Duke, K., Gneezy, A., & Bos, M. W. (2017). Brain drain: The mere presence of one's own smartphone reduces available cognitive capacity. *Journal of the Association for Consumer Research*, 2(2), 140–154.
68. Ruiz Pardo, A. C., & Minda, J. P. (2022). Reexamining the 'brain drain' effect: A replication of Ward et al. (2017). *Acta Psychologica*, 230, 103717.
69. Castelo, N., Kushlev, K., Ward, A. F., Esterman, M., & Reiner, P. B. (2025). Blocking mobile internet on smartphones improves sustained attention, mental health, and subjective well-being. *PNAS Nexus*, 4(2), pgaf017.
70. Kämpfe, J., Sedlmeier, P., & Renkewitz, F. (2011). The impact of background music on adult listeners: A meta-analysis. *Psychology of Music*, 39(4), 424–448.
71. Vasilev, M. R., Kirkby, J. A., & Angele, B. (2018). Auditory distraction during reading: A Bayesian meta-analysis of a continuing controversy. *Perspectives on Psychological Science*, 13(5), 567–597.
72. Berman, M. G., Jonides, J., & Kaplan, S. (2008). The cognitive benefits of interacting with nature. *Psychological Science*, 19(12), 1207–1212.
73. Bratman, G. N., Hamilton, J. P., Hahn, K. S., Daily, G. C., & Gross, J. J. (2015). Nature experience reduces rumination and subgenual prefrontal cortex activation. *Proceedings of the National Academy of Sciences*, 112(28), 8567–8572.
74. Oppizzo, M., & Schwartz, D. L. (2014). Give your ideas some legs: The positive effect of walking on creative thinking. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 40(4), 1142–1152.
75. Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative framework. *Journal of Environmental Psychology*, 15(3), 169–182.
76. Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience*. Harper & Row.
77. Nakamura, J., & Csikszentmihalyi, M. (2014). The concept of flow. In *Flow and the Foundations of Positive Psychology*. Springer.
78. Albulescu, P., Macsinga, I., Rusu, A., Sulea, C., Bodnaru, A., & Tulbure, B. T. (2022). 'Give me a break!' A systematic review and meta-analysis on the efficacy of micro-breaks for increasing well-being and performance. *PLOS ONE*, 17(8), e0272460.

79. Ariga, A., & Lleras, A. (2011). Brief and rare mental 'breaks' keep you focused: Deactivation and reactivation of task goals preempt vigilance decrements. *Cognition*, 118(3), 439–443.
80. Kiewra, K. A. (1989). A review of note-taking: The encoding-storage paradigm and beyond. *Educational Psychology Review*, 1, 147–172.
81. Wammes, J. D., Meade, M. E., & Fernandes, M. A. (2016). The drawing effect: Evidence for reliable and robust memory benefits in free recall. *Quarterly Journal of Experimental Psychology*, 69(9), 1752–1776.
82. Fernandes, M. A., Wammes, J. D., & Meade, M. E. (2018). The surprisingly powerful influence of drawing on memory. *Current Directions in Psychological Science*, 27(5), 302–308.
83. Schroeder, N. L., Nesbit, J. C., Anguiano, C. J., & Adesope, O. O. (2018). Studying and constructing concept maps: A meta-analysis. *Educational Psychology Review*, 30, 431–455.
84. Nesbit, J. C., & Adesope, O. O. (2006). Learning with concept and knowledge maps: A meta-analysis. *Review of Educational Research*, 76(3), 413–448.
85. Mueller, P. A., & Oppenheimer, D. M. (2014). The pen is mightier than the keyboard: Advantages of longhand over laptop note taking. *Psychological Science*, 25(6), 1159–1168.
86. Morehead, K., Dunlosky, J., & Rawson, K. A. (2019). How much mightier is the pen than the keyboard for note-taking? A replication and extension of Mueller and Oppenheimer (2014). *Educational Psychology Review*, 31, 753–780.
87. Urry, H. L., et al. (2021). Don't ditch the laptop just yet: A direct replication of Mueller and Oppenheimer's (2014) Study 1 plus mini meta-analyses across similar studies. *Psychological Science*, 32(3), 326–339.
88. Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest*, 14(1), 4–58.
89. Karpicke, J. D., Butler, A. C., & Roediger, H. L. (2009). Metacognitive strategies in student learning: Do students practise retrieval when they study on their own? *Memory*, 17(4), 471–479.
90. Hartwig, M. K., & Dunlosky, J. (2012). Study strategies of college students: Are self-testing and scheduling related to achievement? *Psychonomic Bulletin & Review*, 19, 126–134.
91. Blasiman, R. N., Dunlosky, J., & Rawson, K. A. (2017). The what, how much, and when of study strategies: Comparing intended versus actual study behaviour. *Memory*, 25(6), 784–792.
92. Roediger, H. L., & Karpicke, J. D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science*, 17(3), 249–255.
93. Rowland, C. A. (2014). The effect of testing versus restudy on retention: A meta-analytic review of the testing effect. *Psychological Bulletin*, 140(6), 1432–1463.
94. Adesope, O. O., Trevisan, D. A., & Sundararajan, N. (2017). Rethinking the use of tests: A meta-analysis of practice testing. *Review of Educational Research*, 87(3), 659–701.
95. Schwieren, J., Barenberg, J., & Dutke, S. (2017). The testing effect in the psychology classroom: A meta-analytic perspective. *Psychology Learning & Teaching*, 16(2), 179–196.
96. Karpicke, J. D., & Blunt, J. R. (2011). Retrieval practice produces more learning than elaborative studying with concept mapping. *Science*, 331(6018), 772–775.
97. Karpicke, J. D., & Roediger, H. L. (2007). Repeated retrieval during learning is the key to long-term retention. *Journal of Memory and Language*, 57(2), 151–162.
98. Cepeda, N. J., Pashler, H., Vul, E., Wixted, J. T., & Rohrer, D. (2006). Distributed practice in verbal recall tasks: A review and quantitative synthesis. *Psychological Bulletin*, 132(3), 354–380.
99. Cepeda, N. J., Vul, E., Rohrer, D., Wixted, J. T., & Pashler, H. (2008). Spacing effects in learning: A temporal ridge line of optimal retention. *Psychological Science*, 19(11), 1095–1102.
100. Kang, S. H. K. (2016). Spaced repetition promotes efficient and effective learning: Policy implications for instruction. *Policy Insights from the Behavioral and Brain Sciences*, 3(1), 12–19.
101. Carpenter, S. K., Cepeda, N. J., Rohrer, D., Kang, S. H. K., & Pashler, H. (2012). Using spacing to enhance diverse forms of learning. *Educational Psychology Review*, 24, 369–378.
102. Rohrer, D., Dedrick, R. F., & Stershic, S. (2015). Interleaved practice improves mathematics learning. *Journal of Educational Psychology*, 107(3), 900–908.
103. Rohrer, D., Dedrick, R. F., Hartwig, M. K., & Cheung, C.-N. (2020). A randomized controlled trial of interleaved mathematics practice. *Journal of Educational Psychology*, 112(1), 40–52.
104. Kornell, N., & Bjork, R. A. (2008). Learning concepts and categories: Is spacing the 'enemy of induction'? *Psychological Science*, 19(6), 585–592.

105. Bjork, E. L., & Bjork, R. A. (2011). Making things hard on yourself, but in a good way: Creating desirable difficulties to enhance learning. In M. A. Gernsbacher et al. (Eds.), *Psychology and the Real World*. Worth Publishers.
106. Bjork, R. A., Dunlosky, J., & Kornell, N. (2013). Self-regulated learning: Beliefs, techniques, and illusions. *Annual Review of Psychology*, 64, 417–444.
107. Bjork, R. A., & Bjork, E. L. (2019). The myth that blocking one's study or practice by topic is an effective way to learn. In C. Barton (Ed.), *Education Myths*. John Catt.
108. Bisra, K., Liu, Q., Nesbit, J. C., Salimi, F., & Winne, P. H. (2018). Inducing self-explanation: A meta-analysis. *Educational Psychology Review*, 30, 703–725.
109. Fiorella, L., & Mayer, R. E. (2016). Eight ways to promote generative learning. *Educational Psychology Review*, 28, 717–741.
110. Slamecka, N. J., & Graf, P. (1978). The generation effect: Delineation of a phenomenon. *Journal of Experimental Psychology: Human Learning and Memory*, 4(6), 592–604.
111. Richland, L. E., Kornell, N., & Kao, L. S. (2009). The pretesting effect: Do unsuccessful retrieval attempts enhance learning? *Journal of Experimental Psychology: Applied*, 15(3), 243–257.
112. Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review*, 63(2), 81–97.
113. Cowan, N. (2001). The magical number 4 in short-term memory: A reconsideration of mental storage capacity. *Behavioral and Brain Sciences*, 24(1), 87–114.
114. Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257–285.
115. Sweller, J., van Merriënboer, J. J. G., & Paas, F. (2019). Cognitive architecture and instructional design: 20 years later. *Educational Psychology Review*, 31, 261–292.
116. Mayer, R. E. (2009). *Multimedia Learning* (2nd ed.). Cambridge University Press.
117. Rivers, M. L. (2021). Metacognition about practice testing: A review of learners' beliefs, monitoring, and control of test-enhanced learning. *Educational Psychology Review*, 33, 823–862.
118. von der Embse, N., Jester, D., Roy, D., & Post, J. (2018). Test anxiety effects, predictors, and correlates: A 30-year meta-analytic review. *Journal of Affective Disorders*, 227, 483–493.
119. Ramirez, G., & Beilock, S. L. (2011). Writing about testing worries boosts exam performance in the classroom. *Science*, 331(6014), 211–213.
120. Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science*, 8(3), 162–166.
121. Frattaroli, J. (2006). Experimental disclosure and its moderators: A meta-analysis. *Psychological Bulletin*, 132(6), 823–865.
122. Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1), 81–112.
123. Okano, K., Kaczmarzyk, J. R., Dave, N., Gabrieli, J. D. E., & Grossman, J. C. (2019). Sleep quality, duration, and consistency are associated with better academic performance in college students. *npj Science of Learning*, 4, 16.
124. Van Dongen, H. P. A., Maislin, G., Mullington, J. M., & Dinges, D. F. (2003). The cumulative cost of additional wakefulness: Dose-response effects on neurobehavioral functions and sleep physiology from chronic sleep restriction and total sleep deprivation. *Sleep*, 26(2), 117–126.
125. Rasch, B., & Born, J. (2013). About sleep's role in memory. *Physiological Reviews*, 93(2), 681–766.
126. Diekelmann, S., & Born, J. (2010). The memory function of sleep. *Nature Reviews Neuroscience*, 11, 114–126.
127. Stickgold, R. (2005). Sleep-dependent memory consolidation. *Nature*, 437, 1272–1278.
128. Wagner, U., Gais, S., Haider, H., Verleger, R., & Born, J. (2004). Sleep inspires insight. *Nature*, 427, 352–355.
129. Lund, H. G., Reider, B. D., Whiting, A. B., & Prichard, J. R. (2010). Sleep patterns and predictors of disturbed sleep in a large population of college students. *Journal of Adolescent Health*, 46(2), 124–132.
130. Hershner, S. D., & Chervin, R. D. (2014). Causes and consequences of sleepiness among college students. *Nature and Science of Sleep*, 6, 73–84.
131. Mah, C. D., Mah, K. E., Kezirian, E. J., & Dement, W. C. (2011). The effects of sleep extension on the athletic performance of collegiate basketball players. *Sleep*, 34(7), 943–950.
132. Wittmann, M., Dinich, J., Mewro, M., & Roenneberg, T. (2006). Social jetlag: Misalignment of biological and social time. *Chronobiology International*, 23(1–2), 497–509.
133. Haraszti, R. Á., Ella, K., Gyöngyösi, N., Roenneberg, T., & Káldi, K. (2014). Social jetlag negatively correlates with academic performance in undergraduates. *Chronobiology International*, 31(5), 603–612.

134. Chang, A.-M., Aeschbach, D., Duffy, J. F., & Czeisler, C. A. (2015). Evening use of light-emitting eReaders negatively affects sleep, circadian timing, and next-morning alertness. *Proceedings of the National Academy of Sciences*, 112(4), 1232–1237.
135. Silvani, M. I., Werder, R., & Perret, C. (2022). The influence of blue light on sleep, performance and wellbeing in young adults: A systematic review. *Frontiers in Physiology*, 13, 943108.
136. Friedrich, A., & Schlarb, A. A. (2018). Let's talk about sleep: A systematic review of psychological interventions to improve sleep in college students. *Journal of Sleep Research*, 27(1), 4–22.
137. Tonetti, L., Natale, V., & Randler, C. (2015). Association between circadian preference and academic achievement: A systematic review and meta-analysis. *Chronobiology International*, 32(6), 792–801.
138. Preckel, F., Lipnevich, A. A., Schneider, S., & Roberts, R. D. (2011). Chronotype, cognitive abilities, and academic achievement: A meta-analytic investigation. *Learning and Individual Differences*, 21(5), 483–492.
139. Drake, C., Roehrs, T., Shambroom, J., & Roth, T. (2013). Caffeine effects on sleep taken 0, 3, or 6 hours before going to bed. *Journal of Clinical Sleep Medicine*, 9(11), 1195–1200.
140. Clark, I., & Landolt, H. P. (2017). Coffee, caffeine, and sleep: A systematic review of epidemiological studies and randomized controlled trials. *Sleep Medicine Reviews*, 31, 70–78.
141. Gardiner, C., Weakley, J., Burke, L. M., et al. (2023). The effect of caffeine on subsequent sleep: A systematic review and meta-analysis. *Sleep Medicine Reviews*, 69, 101764.
142. Milner, C. E., & Cote, K. A. (2009). Benefits of napping in healthy adults: Impact of nap length, time of day, age, and experience with napping. *Journal of Sleep Research*, 18(2), 272–281.
143. Lovato, N., & Lack, L. (2010). The effects of napping on cognitive functioning. *Progress in Brain Research*, 185, 155–166.
144. Jacka, F. N., et al. (2017). A randomised controlled trial of dietary improvement for adults with major depression (the 'SMILES' trial). *BMC Medicine*, 15, 23.
145. Firth, J., et al. (2019). The effects of dietary improvement on symptoms of depression and anxiety: A meta-analysis of randomized controlled trials. *Psychosomatic Medicine*, 81(3), 265–280.
146. Lane, M. M., et al. (2022). Ultra-processed food consumption and mental health: A systematic review and meta-analysis of observational studies. *Nutrients*, 14(13), 2568.
147. Mantantzis, K., Schlaghecken, F., Sünram-Lea, S. I., & Maylor, E. A. (2019). Sugar rush or sugar crash? A meta-analysis of carbohydrate effects on mood. *Neuroscience & Biobehavioral Reviews*, 101, 45–67.
148. Philippou, E., & Constantinou, M. (2014). The influence of glycemic index on cognitive functioning: A systematic review of the evidence. *Advances in Nutrition*, 5(2), 119–130.
149. Adolphus, K., Lawton, C. L., & Dye, L. (2013). The effects of breakfast on behavior and academic performance in children and adolescents. *Frontiers in Human Neuroscience*, 7, 425.
150. Adolphus, K., Lawton, C. L., Champ, C. L., & Dye, L. (2016). The effects of breakfast and breakfast composition on cognition in children and adolescents: A systematic review. *Advances in Nutrition*, 7(3), 590S–612S.
151. Gano, M. S., et al. (2011). Mild dehydration impairs cognitive performance and mood of men. *British Journal of Nutrition*, 106(10), 1535–1543.
152. Armstrong, L. E., et al. (2012). Mild dehydration affects mood in healthy young women. *Journal of Nutrition*, 142(2), 382–388.
153. Benton, D., & Young, H. A. (2015). Do small differences in hydration status affect mood and mental performance? *Nutrition Reviews*, 73(S2), 83–96.
154. Cooper, R. E., Tye, C., Kuntsi, J., Vassos, E., & Asherson, P. (2015). Omega-3 polyunsaturated fatty acid supplementation and cognition: A systematic review and meta-analysis. *Journal of Psychopharmacology*, 29(7), 753–763.
155. Meda, S. A., et al. (2017). Longitudinal influence of alcohol and marijuana use on academic performance in college students. *PLOS ONE*, 12(3), e0172213.
156. Singleton, R. A. (2007). Collegiate alcohol consumption and academic performance. *Journal of Studies on Alcohol and Drugs*, 68(4), 548–555.
157. Bull, F. C., et al. (2020). World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *British Journal of Sports Medicine*, 54(24), 1451–1462.
158. Noetel, M., et al. (2024). Effect of exercise for depression: Systematic review and network meta-analysis of randomised controlled trials. *BMJ*, 384, e075847.
159. Gordon, B. R., McDowell, C. P., Hallgren, M., Meyer, J. D., Lyons, M., & Herring, M. P. (2018). Association of efficacy of resistance exercise training with depressive symptoms: Meta-analysis and meta-regression analysis of randomized clinical trials. *JAMA Psychiatry*, 75(6), 566–576.

160. Schuch, F. B., et al. (2016). Exercise as a treatment for depression: A meta-analysis adjusting for publication bias. *Journal of Psychiatric Research*, 77, 42–51.
161. Singh, B., et al. (2023). Effectiveness of physical activity interventions for improving depression, anxiety and distress: An overview of systematic reviews. *British Journal of Sports Medicine*, 57, 1203–1209.
162. Chang, Y. K., Labban, J. D., Gapin, J. I., & Etnier, J. L. (2012). The effects of acute exercise on cognitive performance: A meta-analysis. *Brain Research*, 1453, 87–101.
163. Ludyga, S., Gerber, M., Brand, S., Holsboer-Trachsler, E., & Pühse, U. (2016). Acute effects of moderate aerobic exercise on specific aspects of executive function in different age and fitness groups: A meta-analysis. *Psychophysiology*, 53(11), 1611–1626.
164. Northey, J. M., Cherbuin, N., Pumpa, K. L., Smee, D. J., & Rattray, B. (2018). Exercise interventions for cognitive function in adults older than 50: A systematic review with meta-analysis. *British Journal of Sports Medicine*, 52(3), 154–160.
165. Erickson, K. I., et al. (2011). Exercise training increases size of hippocampus and improves memory. *Proceedings of the National Academy of Sciences*, 108(7), 3017–3022.
166. Coen, R. F., Lawlor, B. A., & Kenny, R. (2011). Failure to demonstrate that memory improvement is due either to aerobic exercise or increased hippocampal volume. *Proceedings of the National Academy of Sciences*, 108(18), E89.
167. Dunstan, D. W., et al. (2012). Breaking up prolonged sitting reduces postprandial glucose and insulin responses. *Diabetes Care*, 35(5), 976–983.
168. Ekelund, U., et al. (2016). Does physical activity attenuate, or even eliminate, the detrimental association of sitting time with mortality? A harmonised meta-analysis. *The Lancet*, 388(10051), 1302–1310.
169. Auerbach, R. P., et al. (2018). WHO World Mental Health Surveys International College Student Project: Prevalence and distribution of mental disorders. *Journal of Abnormal Psychology*, 127(7), 623–638.
170. Bruffaerts, R., et al. (2018). Mental health problems in college freshmen: Prevalence and academic functioning. *Journal of Affective Disorders*, 225, 97–103.
171. Ebert, D. D., et al. (2019). Prediction of major depressive disorder onset in college students. *Depression and Anxiety*, 36(4), 294–304.
172. Balban, M. Y., et al. (2023). Brief structured respiration practices enhance mood and reduce physiological arousal. *Cell Reports Medicine*, 4(1), 100895.
173. Hofmann, S. G., Asnaani, A., Vonk, I. J. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive Therapy and Research*, 36, 427–440.
174. Harrer, M., et al. (2019). Internet interventions for mental health in university students: A systematic review and meta-analysis. *International Journal of Methods in Psychiatric Research*, 28(2), e1759.
175. Khoury, B., Sharma, M., Rush, S. E., & Fournier, C. (2015). Mindfulness-based stress reduction for healthy individuals: A meta-analysis. *Journal of Psychosomatic Research*, 78(6), 519–528.
176. Emmons, R. A., & McCullough, M. E. (2003). Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology*, 84(2), 377–389.
177. Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: A meta-analytic review. *PLOS Medicine*, 7(7), e1000316.
178. Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: A meta-analytic review. *Perspectives on Psychological Science*, 10(2), 227–237.
179. Diehl, K., Jansen, C., Ishchanova, K., & Hilger-Kolb, J. (2018). Loneliness at universities: Determinants of emotional and social loneliness among students. *International Journal of Environmental Research and Public Health*, 15(9), 1865.
180. Springer, L., Stanne, M. E., & Donovan, S. S. (1999). Effects of small-group learning on undergraduates in science, mathematics, engineering, and technology. *Review of Educational Research*, 69(1), 21–51.
181. Freeman, S., et al. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, 111(23), 8410–8415.
182. Bravata, D. M., et al. (2020). Prevalence, predictors, and treatment of impostor syndrome: A systematic review. *Journal of General Internal Medicine*, 35, 1252–1275.
183. Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science*, 331(6023), 1447–1451.
184. Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and social psychological intervention. *Annual Review of Psychology*, 65, 333–371.
185. Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78.

186. Howard, J. L., Bureau, J., Guay, F., Chong, J. X. Y., & Ryan, R. M. (2021). Student motivation and associated outcomes: A meta-analysis from self-determination theory. *Perspectives on Psychological Science*, 16(6), 1300–1323.
187. Credé, M., Tynan, M. C., & Harms, P. D. (2017). Much ado about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality and Social Psychology*, 113(3), 492–511.
188. Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087–1101.
189. Nancekivell, S. E., Shah, P., & Gelman, S. A. (2020). Maybe they're born with it, or maybe it's experience: Toward a deeper understanding of the learning style myth. *Journal of Educational Psychology*, 112(2), 221–235.
190. Rayner, K., Schotter, E. R., Masson, M. E. J., Potter, M. C., & Treiman, R. (2016). So much to read, so little time: How do we read, and can speed reading help? *Psychological Science in the Public Interest*, 17(1), 4–34.
191. Pietschnig, J., Voracek, M., & Formann, A. K. (2010). Mozart effect–Shmozart effect: A meta-analysis. *Intelligence*, 38(3), 314–323.
192. Danziger, S., Levav, J., & Avnaim-Pesso, L. (2011). Extraneous factors in judicial decisions. *Proceedings of the National Academy of Sciences*, 108(17), 6889–6892.
193. Weinshall-Margel, K., & Shapard, J. (2011). Overlooked factors in the analysis of parole decisions. *Proceedings of the National Academy of Sciences*, 108(42), E833.
194. Glöckner, A. (2016). The irrational hungry judge effect revisited: Simulations reveal that the magnitude of the effect is overestimated. *Judgment and Decision Making*, 11(6), 601–610.

How this book was made

A short note on method, because a book that spends its pages telling you to check the evidence should say how its own was assembled.

Every claim of fact in these pages is tied to a numbered source. Where a finding is contested, the challenge is cited next to the original rather than in place of it – which is why the reference list contains replications that failed, commentaries that disagreed, and in one case a paper currently being retracted, sitting beside the work they are arguing with.

Three rules were applied throughout. Meta-analyses and replications were preferred to single striking studies. Effect sizes were reported as small when they were small. And where the honest answer was “this is a useful way to think, not a measured result”, the text says so and the diagram is labelled accordingly.

What that produces is a less exciting book than the genre usually offers, and one you can act on without later discovering that the foundation moved.

Set in Lora and Poppins. Diagrams drawn for this edition; all are designed to stay readable in black and white.