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2 Writing

Overview

- Most researchers are binge writers: they avoid writing until deadlines loom.
- Becoming a productive writer is more a matter of good habits and regular work than natural talent.
- To develop habits that support productive writing, five methods are valuable: awareness, valuing, understanding, endorsement and action.
- A writing programme involving brief regular sessions is compatible with research on expert performance.¹

Kerryn

For me, the high-output programme has been a lifeline.

The programme has worked for me as a tool to start writing my thesis, instead of reading, planning, researching and just generally delaying the actual process of writing! Before I adopted the write-before-you're-ready approach advocated by the programme, the process of actually writing was a daunting thought. I was always searching for that elusive block of time when I could sit down and write. That

¹ I thank Sharon Callaghan, Lyn Carson, Don Eldridge, Anders Ericsson, Tara Gray, Ian Miles and Kirsti Rawstron for valuable feedback on drafts of this chapter, and all members of the high-output writing programme for many insights.

time was very hard to find, and as a result my thesis word count showed only staggered increases.

For me the everyday part — of writing new words every day — is crucial. It's about establishing a habit and sticking to the routine. By adopting this approach, the words are building steadily. Some days are more productive than others, but by setting an achievable target in terms of time (for me it's a minimum of 20 minutes) the opportunity to write each day is possible. Often the momentum gained from just starting to write results in more time spent writing than initially planned. I make sure to stop after an hour so I don't become fatigued and thus not keen to write the next day.

The important thing to remember is that although the writing may need polishing later, the words and ideas are there. This keeps your thesis alive. I've found that after the initial few weeks taken to establish the habit, writing each day is a gratifying experience that works to reassure me that my thesis will be written! Learning the skill of writing new words has also improved my writing ability - the words come easier.²

In early 2008, I read a short, punchy book by Tara Gray titled *Publish & Flourish*.³ It spells out a 12-step plan to become a prolific academic author and cited research to back up the plan. I immediately knew I had come across a winner.

A bit of background. The job of most academics has three main components: teaching, researching, and service. The service component includes various administrative things like sitting on committees or helping with professional associations. Teaching is pretty obvious. Then there's research, which varies a

² This and following quotes are from participants in the high-output writing programme, having been involved for about six months.

³ Tara Gray, *Publish & Flourish: Become a Prolific Scholar* (New Mexico: Teaching Academy, New Mexico State University, 2005).

lot depending on the discipline but basically involves doing something new, adding to the body of knowledge and practice in the world.

The most common output of research is an article published in a professional journal. If you're in physics, it's prestigious to publish in *Physical Review*, whereas in sociology, *American Sociological Review* has clout. There are plenty of choices: there are hundreds of thousands of scholarly journals to choose from. Does anyone read them? Some articles, yes, but the average article would be lucky to have half a dozen readers. Nevertheless, the research findings sit there in the journals, available should anyone want to see what's been done.

In some fields, conference papers are more common than articles in journals; in others, books are respected outputs. In creative arts, it might be paintings or musical compositions. I'll refer to articles — sometimes called papers — for simplicity.

Even when no one reads your article, there's still a pay-off: you, as the author of a scholarly article, gain status. More than that, publishing academic papers is the way to get ahead. Usually you need some publications to get a job, more to obtain tenure and quite a few to become well known in your field. It is widely known that publishing is the road to academic advancement. It's not guaranteed but it's far more reliable than being a good teacher.

For decades, academics have been told to “publish or perish”: either you publish articles or else your academic career is over. That's an exaggeration, because most academics don't publish that much. Publishing one scholarly paper per year puts you ahead of half of all academics.⁴ One paper per year doesn't

⁴ Richard A. Wanner, Lionel S. Lewis and David I. Gregorio, “Research productivity in academia: a comparative study of the sciences, social

sound like that much, considering you're supposed to be spending a third or more of your time working on research. A third of a year is 120 days, seemingly a lot of time to produce just one article, maybe 5000 words of published text.

Even though tenured academics can get by without publishing much, "publish or perish" is more of a reality for those starting out. Without publications, it's difficult to obtain an academic job, especially at a prestigious university where there's a greater emphasis on research, and lower teaching loads. At top universities in the US, only some assistant professors are granted tenure. Having plenty of publications is the most promising way to achieve this goal.

I've described here the way the academic system works. However, there are plenty of problems with the system: critics paint the institutionalised obsession with publishing as a glorification of selfishness, waste and misdirection. My description of academic research is intended not as an endorsement but as a prelude to the discussion of an approach to writing that I think is worthwhile in itself, even if the goals to which it is turned can be criticised.

More generally, good quality writing isn't necessarily a good thing. After all, it might be designed to promote racism or justify an atrocity. So in looking at writing as a good thing, I assume the purpose of the writing is worthwhile. If it is, then it's valuable for more people to write and for them to write better. There's no special word for "writing for a worthwhile purpose," but that's what I'm talking about here.

sciences and humanities," *Sociology of Education*, 54, October 1981, 238–253.

Boice

The title of Tara Gray's book, *Publish & Flourish*, turns the familiar "publish or perish" into a more positive formulation. Her manual promises success in this vital endeavour.

The foundation of Gray's 12-step programme is quite simple: write for 15 to 30 minutes every day. Yes, that's it: the core requirement is daily writing — and even five days a week will do.

Gray cites the work of Robert Boice, who back in the 1980s began studying the habits of productive new academics.⁵ Boice is the one who found that daily writing is the key to success.

Why is this surprising? Coaches expect their athletes — swimmers, runners and so forth — to train daily. Junior athletes are expected to show up for training every day, at the same time. Swimmers have to put in their laps and runners their distance. This sort of training enables dedicated high school athletes to achieve times better than world champions a century ago.

So what were top athletes doing a century ago? Those were the days of amateurs, often from the upper class with spare time and access to facilities, who trained when they felt like it, typically on weekends. Very gentlemanly. But their performances weren't very good by today's standards.

What about writing? Most academics seem to be operating like the gentleman athletes of the past. They wait until they feel like writing. That usually means when they have a big block of time, or are forced to meet a deadline.

⁵ Robert Boice, *Professors as Writers: A Self-help Guide to Productive Writing* (Stillwater, OK: New Forums Press, 1990); Robert Boice, *Advice for New Faculty Members: Nihil Nimus* (Boston: Allyn & Bacon, 2000).

Boice found that aiming to write in big blocks of time is not a good approach. The first problem is that it's hard to find a big block, because it's too tempting to do all sorts of little tasks first. These days the biggest culprits include email, surfing the web and social networking. Boice started his investigations before these were on the scene, but even in the old days there were plenty of tempting little tasks to sidetrack a writing session. So the earnest academic would say, "I'll wait until the weekend ... or until teaching is over ... or until I'm on sabbatical." Some never got started at all. When these putative writing times arrived, it was all too hard to become inspired to actually write.

The second problem is that a big block of time for writing makes the task seem onerous. Some writers are able to overcome their inertia — often when a deadline is looming — and push themselves into a marathon session of frenzied writing. This is exhausting. When finished, there's little psychic energy left for writing on following days. It takes a while to recover before getting up the mental strength for another lengthy session. Weeks can go by with only a few days of actual writing.

This pattern is analogous to a weekend athlete who is physically exhausted after a long workout. It takes several days to recover.

Boice calls this pattern binge writing. It's analogous to drinking or eating too much — you feel terrible afterwards.

Bridget

I have found the program very helpful in many ways. When I started, I was having an extremely difficult time pacing myself with my thesis writing. I would binge-write until I totally ran out of energy and not be able to face it again for weeks. My output was high, but my thoughts were all over the place.

In the last twelve weeks my thesis writing has improved so much. I'm not writing as much but what I do write is much

more coherent, and my thinking is clearer. I've also starting writing a novel just for fun. I've written more than 25,000 words so far. I found writing for a short time each day, and doing it consistently, helped immensely with my confidence. I didn't feel so pressured, and I wasn't constantly worried about not doing enough.

Bridget's case is extreme, but milder forms are very common: articles written to deadlines — or not at all.

Why do academics binge-write? Most of them learn the habit from doing assignments in high school or undergraduate years: it's common to postpone the work and then do it all at the last moment, sometimes in an "all-nighter." Why is this the usual approach? Probably because assignments and deadlines are imposed by the teacher. When students do something they enjoy — like socialising or playing video games — they are less likely to postpone them.

Habits from high school and undergraduate study become increasingly dysfunctional as tasks become larger. Writing an essay overnight is possible, but completing a 90,000-word thesis requires planning. It's still possible to binge: my friend Steve wrote his PhD thesis in six weeks, using stimulants to stay alert. But this is not a prescription for long-term productivity, nor for enjoying the process.

Boice's alternative is simple: brief regular writing sessions. For academics, the easiest regular pattern is daily. Instead of setting aside just one day a week for writing, and continuing for hours until mental exhaustion sets in, a daily writing session might be for half an hour, or even less.

Many academics, as soon as this option is proposed, begin a series of objections. "It takes me quite a while to get started — to get myself immersed in the subject." "I can't just turn on inspiration at will." True enough. If you write infrequently, then

it does take a while to get back into the topic. And if you write in binges, you won't feel like doing it again very soon.

Regular sessions provide a solution to these obstacles. When you get used to writing every day, you don't need as much start-up time to get into the topic, because you were dealing with it yesterday. The result is greater efficiency, as memory is primed and maintained more easily.

As for inspiration, here's the new aphorism: "Don't wait to be inspired to write; instead, write to be inspired." Regular writing creates inspiration. Boice did an experiment in which one group of academics did no writing but maintained other usual activities (reading, seminars, etc.), another group wrote their normal way — bingeing — and a third group did brief daily sessions. The no-writing group averaged one new idea per week, the binge-writing group two new ideas and the regular-writing group five new ideas.⁶ What Boice found is that waiting to be inspired is not very effective. Writing is the crucible for sparking ideas, rather than ideas being the trigger for productive writing.

The core of Boice's and Gray's prescription for productivity is daily writing — but not too much. Gray recommends 15 to 30 minutes per day. I have interpreted this as the writing of "new words," rather than revising previous writing.⁷ If you write for

6 Robert Boice, "Contingency management in writing and the appearance of creative ideas: implications for the treatment of writing blocks," *Behaviour Research & Therapy*, 21 (1984), pp. 537–543.

7 I might have misinterpreted Boice and Gray's advice: they might be happy to include editing in the 15 to 30 minutes per day, whereas I advise doing editing after writing new words. In my experience, writing new words is the most challenging task for most researchers, so regularly doing this is the key to greater productivity. However, there are some writers who have no trouble producing new words but get stuck in

too long, it becomes onerous — and as a result you're less likely to continue day after day. The idea is to make new writing so inoffensive, over so quickly, that doing it doesn't seem like such a big deal. When expectations aren't so high, it's easy to overcome your internal censor: the little voice that says to you, "What you're writing is no good. In fact, it's crap. You're not measuring up. Give up and wait for a better time."

Perfectionism is a deadly enemy of good performance. It's like being judged every time you write a sentence or paragraph. It's far better to go ahead, make mistakes and learn from them.

Nichole

I began the programme because I wanted to let go of my perfectionist approach to writing which required blocks of time that, with small children at my knee, were never going to be available. Writing for me has always been challenging because my thoughts run thick and fast and the task of getting them down on the page in a manner that makes sense to others has always been overwhelming! I tended not to engage with these ideas in a rigorous or academic manner because I forgot them. I didn't write them down (unless they were part of the process of taking fieldnotes) because I felt that to write anything I needed to be "in the zone."

Writing daily has been a wonderful experience for me because it has provided me with a non-threatening way of untangling my messy thought process, thread by thread. I try to write each day and to write about a thesis-related issue. The issue is usually related to a reading or the data I have coded the night before. I have found that by doing this I am able to tease out an idea and look at what I know and need to know. The process has enabled me to get the cacophony of ideas and thoughts babbling through my head onto the

perpetual revisions or have difficulty finishing articles or submitting them for publication, in which case these tasks should take precedence.

paper and into my thesis. My thesis is taking shape steadily as I paste the ideas into the relevant part of the relevant chapter.

The most exciting part of this approach to writing has been reconnecting with the creative side of my brain. The free writing gives me the opportunity to play with ideas, rather than slogging away and worrying whether they are right or expressed perfectly. The support of the group has also been central to my enjoyment of this approach: the others inspire and motivate me to stick at it and to work through the blocks.

Rather than expecting great output from a burst of frenzied inspiration, the idea behind Boice's brief regular sessions is to work with low daily expectations, knowing that this will lead in time to better results.

Many writers get stuck at the very beginning. They sit down to write and can't put a word on the page, because it doesn't measure up to their expectations. Or they write a sentence or a paragraph and then spend ten minutes or half an hour rewriting it, sometimes deleting it and starting again.

I recommend brief sessions writing new words, with revisions done at a different time. Why separate the writing of new words and the process of revising? It's because the creative process of creating new text can be undermined by the critical orientation usually taken during reading and revising.

Academics get a lot of experience in being critical. When they read a piece of writing by a student, they look for mistakes, for example misuse of a theory, omission of a key concept, the wrong answer on an exam, or even just misspelled words. Whenever they read a scholarly work — a published article, for example — this critical orientation is turned on. One aim in reading is to understand; another is to find fault. If you can't find flaws in someone's work, how can you do better yourself?

Trouble arises, though, when this critical capacity is turned on when you try to write. The text simply doesn't measure up. The mind cries out in pain: "It's no good! Change it! Delete!"

Writing programmes

Inspired by Gray's and Boice's work, I first adopted their approach myself. This wasn't too hard, because decades earlier I had developed my own system that was halfway to the Boice-Gray model. My practice was to set aside two hours for writing and to keep writing until either I had written 1000 words or the two hours were over. I could do this several days in a week, or even every day, until finishing the draft of a chapter or article. Then I would go into editing mode, and it might be a couple of weeks before I was ready for more writing of new text.

Following the Boice-Gray formula, I switched to 15–30 minutes nearly every day, typically writing about 300 words. I found this much easier. Writing 1000 words in a session was usually hard work; by comparison, 300 is a breeze. Furthermore, by writing nearly every day, I don't have any start-up problems. Previously, after not writing for a week or two, the first day back was really hard going. Now I find the daily routine easy to maintain. Of course I had a big advantage: I had been writing for a long time and knew how to go about it.

My next step was to encourage others to adopt the Boice-Gray writing programme. I started with my PhD students, most of whom were highly receptive. I also set up programmes with other research students in the Arts Faculty. Running these programmes enabled me to learn much more about obstacles to writing and what helps to overcome them.

Boice and Gray recommend keeping records, in particular the number of new words you write each day and the number of minutes it takes to write them. They also recommend reporting

these totals to an adviser or mentor, someone to whom the writer will feel accountable. I asked my own students to send their weekly totals to me. That way I could assess how they were doing and discuss, in our weekly phone calls, ways to fine-tune the programme. For the writing groups in the faculty, I initially suggested that students — not supervised by me — could report their weekly totals either to me or to someone else of their choice, such as their supervisor. But I soon found that reporting totals to people who didn't understand the programme was not helpful. Students need to be accountable to someone who will give them support. I learned that some academics don't understand the writing programme or don't believe in it.

In helping others use the Boice-Gray writing programme, I make some specific recommendations. I suggest making notes about the points to be covered in new writing, doing this a day or week beforehand. Then I recommend that when you sit down to write, you close or remove all books, articles and other polished text. Why? Because reading the polished text switches your mind into its flaw-noticing mode, the enemy of creating your own new words. I also recommend not reading yesterday's writing, but instead using just your notes to provide guidance to today's new words.

I also recommend closing the door, turning off the telephone, closing email and web applications and generally removing all distractions. Producing new words, for many writers, is a delicate process. Interruptions are temptations to do something else.

Email is a prime distraction. Several writers told me they could do their writing on most days, but sometimes they never got around to it — the days when they looked at their email first. The web is another temptation. Megan could hardly write a sentence without checking some point on the web, often follow-

ing links down fascinating byways. Her writing proceeded extremely slowly.

For some, the main distractions are people, such as others living in the house who will interrupt. I say, "go into a room and close the door," but not everyone has a separate room. Another strategy is to negotiate with family members to have 15 uninterrupted minutes. That often works with adults but seldom with small children.

Some academics say that they are so busy that they had no time to do 15 minutes of daily writing. What this usually means is that they have put writing too low on their priority list. With 16 or more waking hours per day, it's hard to imagine work occupying every minute. These busy academics spend hours preparing lectures, marking essays, attending seminars and committee meetings — and checking emails, watching television and having coffee with colleagues. If you're sitting with a pile of essays to mark, preparing to work on them for hours, taking 15 minutes away at the very beginning can't make much difference, can it?

Vicki had a full-time research position — no teaching, no supervision, very little administration. She did lots of work, but made very little progress on publications because she kept postponing writing. After she started the writing programme, she was able to produce article after article.

For Vicki, the main obstacle was not time — it was lack of a writing habit. The same applies to those with lots of other tasks, such as teaching and reading emails: doing the other tasks is often an excuse to avoid writing. When writing becomes a top priority, there will be time enough.

The title of chapter 4 in Boice's book *Advice for New Faculty Members* is a single word: "Stop." If the first principle of productive writing is to start, the second is to stop — before

doing too much. For regular writing, you need to feel fresh when you start. If you feel worn out from too much writing yesterday or the day before, then you may postpone your session until tomorrow, starting a cycle of boom and bust, namely binge writing. So, Boice says, stop sooner rather than later.

Gray in her 12-step programme made the advice more specific: write for 15 to 30 minutes per day. That means stopping when you get to 30 minutes. Actually, half an hour is more than enough for some writers. The optimum time for writing new words is what you can sustain day after day. It might be 10 or even just 5 minutes per day.

Again the analogy to exercise is helpful. If you exercise too much, then you may be sore and need a rest day. The optimum level is what you can sustain day after day, perhaps gradually building up the intensity of training but not necessarily the overall time.

Some athletes train for several hours every day. Think of the swimmers doing lap after lap. How can writers get by with only 30 minutes per day?

Suppose you spend 15 minutes daily creating *new* words. There's a lot of additional work required before this becomes publishable prose: revising, studying key texts, obtaining data, doing experiments, seeking comments on drafts, submitting the article, revising it in the light of referees' comments and perhaps resubmitting it if rejected. Writing new words is the core activity, something akin to the highest intensity part of an athletic training programme, but it has to be supplemented by a lot of other work. This might require several hours per day.

How many words can you write in a minute? If you just spew them out without thinking, you can go as fast as you can type (or, lacking a keyboard, as fast as you can write by hand). But if you ponder over them, so they come out as text that you

might actually use — after revision — then the pace will be slower. The people I've worked with have quite different rates of output, from about 5 to 40 words per minute.

Chai, a PhD student from Thailand, visited Wollongong for a semester and participated in the writing programme. His pace was pretty slow: five words per minute. But English was his second language and he found it challenging to express himself, though the finished product was quite good. Later, back in Thailand writing in Thai, he wrote more like 20 words per minute, a fast pace for thesis material.

Let's say you average 20 minutes per day and write 15 words per minute, a total of 300 words per day. It doesn't sound like much, but it mounts up. In three weeks, your total is 6000 words, enough for a typical article. So you start another article, also setting aside some time each day to revise the first article. Another three weeks and you have the draft of a second article. Keep up this pace and you have 17 articles in a year — a spectacular output by any standard. Is it sustainable? If the work in revision and doing the research gets to be too much, what's the solution? Easy: just write new words for less time, maybe just 10 minutes per day. If you complete eight articles per year, you'll still be in the top echelons of academic productivity.

One of the common problems of people using this programme is "I don't know what to write," often accompanied by "I'm not ready. I need to do more reading, or thinking, or investigation." This is an indirect expression of the familiar formula of researching first and then writing up the results. Boice and Gray want to turn this on its head. Their motto: "Write before you're ready!"

This means starting writing even though you don't know enough about the topic, you haven't read all the background material and haven't done the experiments or fieldwork or

interviews. Indeed, you're just starting work in an area that's entirely new to you. How can you write about it?

One approach is to write about what you're going to do. Describe the things you know and the things you need to find out. Tell about the experiments you're planning and how you'll set them up. Tell how you'll analyse the data.

Another approach is pretty similar: start writing the paper that you'd normally write at the end of your research. When you come to any part that you don't know or don't understand, just do as well as you can and keep going.

This feels very strange at first. Here's how it works. By writing, you stimulate your thinking. In fact, writing is a form of thinking. In order to make progress on your project, you need to think about it — and writing is an efficient way of getting this happening. Even after you've finished writing for the day, your unconscious mind will be working away at the topic, trying to address the matters you expressed.

Of course it's quite possible to think about your topic without writing about it. Writing is just a reliable way of sustaining the thinking process. How many people schedule 15 minutes per day of concentrated thinking about a topic? If you've tried it, you'll know it's not easy.

Unconscious mental processing — during the time you're not writing — is one thing that makes daily writing more efficient than bingeing. When you do a long stint of writing, you're attempting to concentrate all the thinking in one burst. This intensive effort can be exciting, but despite appearances it's not as productive as harnessing the mind over longer periods.

There's another, more practical reason why writing first — before doing the research — is more efficient than writing only at the end. Let's say there are ten major books in the area you want to write about. The normal approach is to read them first,

and probably you'll want to read even more books and articles just to be sure you understand the topic.

This approach can lead to a reluctance to start writing: the more you know about the topic, the harder it is to measure up to all this work by prior authors. Matt Groening captured this with a cartoon about doing a PhD. The caption reads “The simple way to avoid the stomach-churning agony of having to finish your thesis: read another book — repeat when necessary.”⁸

When you write first, before doing all the reading, you find out exactly what you need to know. In writing an article or chapter, you find gaps in your argument, points where you need examples, and places where you need a reference. So when you turn to the ten books, you don't need to read them in full. You'll know exactly what you're looking for, so you can just check the relevant bits.

Does this mean you don't learn as much overall? Not necessarily. When you read a book or article with a purpose, you're much more likely to be able to remember crucial information because it fits within a framework you've developed.

Writing as the driver

Given that there are so many tasks involved in research — collecting data, doing experiments, becoming familiar with prior work, learning theory, etc. — why should writing be seen as so important? The answer, I think, is that writing is a core activity that drives the rest.

Consider someone who wants to become a better swimmer. It would be possible to spend a lot of time on things other than swimming, like making turns, refining the stroke and choosing

⁸ Matt Groening, *School is Hell* (New York: Pantheon, 1987), “Lesson 19: grad school — some people never learn.”

the right diet. But it wouldn't make sense to do these without also doing plenty of swimming. Regular swimming is the core activity. Learning how to do better turns will be more productive when you can swim fast. Choosing a good diet will depend on your training regime: lots of swimming means a larger appetite, higher demands for some nutrients and the like. With swimming as the core, it becomes obvious and necessary to undertake supporting tasks like getting plenty of sleep and doing strength training. Yes, you could aim to get plenty of sleep first and then launch into swimming a year down the track. But it makes more sense to put pool time first.

The same applies to research: writing drives other activities. To do daily writing means having something to write about, which means you need to think in advance about what you're trying to say: writing stimulates research planning. Daily writing generates words, and they need to be revised for publication, so this is another desirable daily task. Writing reveals gaps in your knowledge and highlights areas you need to investigate. So by writing daily, you generate a backlog of further things to do: articles to read, observations to make, theories to learn about.

When athletes train every day, in a controlled way, they gradually develop the capacity for more intense training, a process called progressive conditioning. To enable sufficient recovery time between training sessions, some athletes use split routines, such as strength work on different parts of the body on different days, or a high-intensity workout one day followed by a lower-intensity workout the next.

Writers can also benefit from progressive conditioning. Writing daily helps build the capacity for more productive sessions later on, either more words or higher quality expression or both. A split writing routine might involve a longer easier writing task one day and a shorter more intense task the next, or

writing on different topics every other day. Whether this would improve writing performance is unknown, given the absence of studies of such possibilities. In the meantime, individuals can try different approaches and see what works for them.

However, fine-tuning a writing programme is a luxury when the primary challenge is doing any writing at all. Many researchers rely on their willpower to find time to write. This has pitfalls. Willpower is important, to be sure, but it needs to be used strategically, otherwise it wears out too quickly.

Imagine an academic sitting in her office. A little voice says, "I know I should be doing some writing but first I'll check my emails." An hour or two later, there are new tasks — some emails brought new issues or interests to the fore, like filling out a questionnaire or responding to students. Then there's the web: "I'd better check the latest on Hilda's blog." Colleagues see your door open and stop to say hello or say "Let's go for a coffee." Before you know it, it's time for a class or a meeting. Or maybe you have a pile of essays to mark. "I'd better do those first. *Then* I can get to my research." Or maybe, "Whoops, I have to prepare for tomorrow's class. Drop everything else."

Some writers work at home to avoid office distractions. Others can't do this because of children and family members — or when at home become preoccupied with calls, texting, email and the web.

What's happening here is that small, seemingly urgent things are getting in the way of working on larger important goals. Willpower is needed to set aside the little things and concentrate on the big ones. But there are so many little things that willpower is soon exhausted, so your activity is driven by deadlines.

The solution is to use willpower to shape the environment, in particular to remove the distractions. That's why I recommend

turning off phones and email, closing the door and taking other steps to block interruptions and distractions.

Boice reports that some people on the writing programme make great gains in early months. They get into the habit of writing and it pays dividends. They then decide they don't need to continue the monitoring parts, such as recording daily minutes spent writing and words written and reporting them weekly to a mentor. But when they stop doing this, they have to rely on willpower much more, and may relapse into bingeing habits. Boice's argument is that you need to continue to shape your environment to support your good habits.⁹

Serious athletes expect to spend years in training. If you're on the high school or university track team, you are expected to join regular training. Your coach will monitor your performance. It would be an unusual runner indeed who reached the top ranks without a strong support system to guide training, give feedback and maintain commitment.

Why do I keep referring to running and swimming? In part because they are sports involving individual performance, and so are a better analogy to the individual task of doing research. With team sports like soccer, regular training is even more important. There's an analogy between team sports and research groups, though I don't know anyone who has developed the implications. It's also possible to develop analogies with other activities requiring practice, such as music and dance.

Brief and regular

Boice's approach of brief regular sessions can be used for all sorts of other activities. When you have a task that you're avoiding because it seems like you need a block of time to

⁹ Boice, *Professors as Writers*, 124.

accomplish it, try breaking it down into small bits and doing them day by day.

I had a book to review and never got around to reading it. I had promised to review it and actually wanted to read it, but it wasn't high enough on my agenda, so I kept postponing doing the reading. I even had the book on my list of things to do, but that wasn't enough. Two years later, after reading Boice, I tried a different approach: I said to myself, I'll just read five pages every day. Reading five pages isn't onerous; surely I could do that. It's only five minutes!

So I read five pages per day. The book had 250 pages, so I finished in two months. Not quick — but definitely faster than the two years I had delayed getting started. Then I wrote the review in a day using the writing programme.

Initially I worried that by reading just a few pages each day I'd forget what I'd read before. I was surprised: I actually remembered previous reading quite well: my overall retention improved. To me it was another demonstration of the advantages of breaking down tasks and not bingeing.

Boice presents his non-bingeing approach as a general strategy for good academic performance. The first half of his book *Advice for New Faculty Members* is about teaching. Most new academics, with a full-time teaching load and an expectation to do research, put way too much effort into teaching. They do this highly inefficiently, by devoting big blocks of time to tasks with encroaching deadlines.

Preparing a lecture is a prime example: to prepare for a one-hour lecture, junior academics — not having taught a particular course before — commonly spend many hours in preparation: reading background material, searching out key ideas, preparing slides, even writing out every word they are going to say. This

preparation can be stressful, especially when it's done at the last moment, perhaps the day before.

Boice recommends starting much earlier, weeks or months ahead, spending just a few minutes per day on a lecture, sketching out ideas and then returning to the task the next day, gradually adding ideas and materials until there's enough. Boice says most academics over-prepare for lectures: they have too much material and are too attached to what they have so they can't easily respond to the class and adapt to the circumstances. Ironically, too much preparation can lead to a *less* successful lecture.

Then there is marking of assignments. Let's say you have a pile of 50 essays or exams to mark. This seems onerous, so it's tempting to leave it until tomorrow. Marking is postponed until it becomes imperative to finish the work, which means a marathon marking session. You anticipated it would be unpleasant, and you're right: it's boring, stressful and exhausting. The result: you repeat the process with the next batch of essays: delay and then binge.

Boice's approach makes it so much easier. Let's say you need to return the essays in two weeks. Divide 50 essays by 14 days and you get less than four essays per day. So do just four on the first day and stop. It's not so hard, and you're fresh the next day. Even better, your brain unconsciously addresses the task along the way, so you're more effective as you go along: you know what to look for without even thinking about it.

I've been doing marking this way for years. It works wonderfully and is so much better than binge marking that it's hard for me to understand why anyone would let themselves fall into marathon marking sessions. Well, actually, it's easy to understand. Every day, other tasks seem more urgent — or more attractive — so postponing becomes a habit.

Recommendations on writing

Only a few people have done proper research about the value of the writing programme, most notably Boice and Gray. Boice compared groups of junior academics who adopted his writing programme with those who didn't and found a dramatic increase in productivity among those adhering to brief regular sessions — nine times greater output.¹⁰ Gray and a colleague found that a group adopting her programme was producing polished work at a rate of 75 pages per year, quite good for academics.¹¹

No doubt these controlled tests can be criticised methodologically on the grounds that paying special attention to writing, and changing habits, could have caused some of the improvements. Even so, they are the best studies available. They carry far more weight than individual testimonials such as the ones in this chapter. Nevertheless, it's worthwhile looking at recommendations from experienced writing advisers, to see whether they're compatible with the Boice-Gray programme.

Brad Johnson and Carol Mullen wrote a book titled *Write to the Top! How to Become a Prolific Academic*.¹² Johnson and Mullen are prolific academics themselves. Their book summarises their experience as well as drawing on other studies. They don't cite Boice or Gray, so it's safe to say they developed their advice independently.

Write to the Top! is a superb systematic treatment of writing and research, presented in a straightforward way. I say "superb"

10 Robert Boice, "Procrastination, busyness and bingeing," *Behaviour Research & Therapy*, 27, 1989, 605–611.

11 Tara Gray and Jane Birch, "Publish, don't perish: a program to help scholars flourish," *To Improve the Academy*, 19, 2001, 268–284.

12 W. Brad Johnson and Carol A. Mullen, *Write to the Top! How to Become a Prolific Academic* (New York: Palgrave Macmillan, 2007).

because everything they say accords with my own experience and what I've learned about doing research. Chapter 1 of the book is about developing a habit, which is exactly what Boice and Gray try to do. Johnson and Mullen recommend scheduling writing, putting writing times in your diary. They say daily writing is crucial.¹³ They recommend turning off all distractions when writing.¹⁴

Johnson and Mullen pay a lot of attention to obstacles to developing a writing habit. They say "once you decide to write, nearly everything in your life will conspire to derail you," including reading, emails and colleagues.¹⁵ So setting up boundaries against interruptions is vital. So is saying no to requests, for example to give talks, apply for grant applications, edit journals, serve on committees and the like. If you agree to every request, you'll soon be so burdened that your own research will suffer. In fact, the more productive you become, the stronger your boundaries need to be.

Johnson and Mullen have suggestions for dealing with problems. They note that in many places there is a "factory mentality," namely a norm against producing too much, applied especially to junior academics. The solution? Hide your enthusiasm and success in order to minimise resentment and sabotage by colleagues.

Everything Johnson and Mullen say is generally compatible with Boice and Gray. There is one slight difference. Johnson and Mullen say that when you're writing and feeling really good — when you're on a roll — then keep going. Boice would say "stop" before doing too much.

13 Ibid., 45.

14 Ibid., 40.

15 Ibid., 26.

Paul Silvia is a psychologist who turned his attention to writing. His book *How to Write a Lot: A Practical Guide to Productive Academic Writing* is most entertaining.¹⁶ Silvia draws on psychological research to give advice, especially on overcoming mental barriers. He covers tools for maintaining motivation, for example setting highly specific goals like writing 200 words, getting references and making an outline.

Silvia, like Johnson and Mullen, does not cite the work of Boice or Gray, but most of his recommendations are compatible with their work. He says that finding big blocks of time is a false barrier: instead of "finding" time, you should allot it, and refuse any meeting that interferes, just like you would say you couldn't attend a meeting that clashed with your class times. Silvia says that binge writers often say they're not schedulers, but, he notes, they can schedule teaching, television watching and sleeping.

A lot of people who aren't producing say they have "writer's block." Silvia isn't impressed: he says writer's block is a description, not an explanation. It just means a person isn't writing. The solution to writer's block is simply to start writing.

Like Boice and Gray, Silvia says habit is the key to productivity and that keeping records of your work is helpful. He advises minimising interruptions during your scheduled research time. He says "The best kind of self-control is to avoid situations that require self-control."¹⁷

There is one difference though: Silvia doesn't emphasise writing new words every day. In Silvia's approach, the key is

16 Paul J. Silvia, *How to Write a Lot: A Practical Guide to Productive Academic Writing* (Washington, DC: American Psychological Association, 2007).

17 Ibid., 22.

scheduling research time every day — a couple of hours if possible.

Jody

Writing has not come easy for me. To think I could write freely about my thesis was not something I had previously contemplated. I had always taken notes and written down any thoughts that came into my head, even in the early hours of the morning, but free writing was not something I felt comfortable with.

Although I was aware of the importance of the process of writing, editing my work and getting it out to someone for critical comments, I am finding this programme is putting that awareness into genuine practice. I find that my ability to run words together and have them form coherent and useful sentences has greatly improved. I have been on the programme now for about three months and although I only spend about 10–15 minutes each day, occasionally longer, it is enough at this early stage of my PhD to keep the momentum going.

I have found also that the writing has started to drive my research because I am identifying areas where I need to gain a deeper knowledge. A hint Brian gave me was to work on different topics at the same time. I have found this very useful as I sometimes have not read sufficiently to be able to write freely on one topic so I then move to another, such as an article or book chapter. For me it has become my craft. I practise every day, as much as possible, and every day I feel more confident and know I am improving. Little by little I am becoming a writer, someone who can visualise what is going on in my head and transcribe those thoughts into the written word to communicate with others. It is just wonderful and I know if I keep it up I will get better and writing will become easier for me.

So far I've looked at advice from academics about academic writing — and just looked at a few key sources: there's much more. Going beyond academia to writing in general, there's a vast amount of writing about writing, especially for fiction writers. There are many courses on how to be a writer — a fiction writer that is — and a correspondingly large amount of writing about it.

King

Stephen King is one of the world's best-selling authors. He is incredibly productive. In one of his books — *On Writing: A Memoir of the Craft* — he tells about the way he goes about it.¹⁸ The book is not just about writing: it contains an engaging account of King's childhood, in snippets, and of a horrific accident he experienced. The book exemplifies what he preaches: it is fascinating to read, combining story and insight.

King says that to be a writer, you should “read a lot and write a lot,” work in a “serene atmosphere” and avoid “alarms and excursions.” He says “Don't wait for the muse,” in other words write even though you don't feel inspired.¹⁹ You should write in a place of your own, with a room, a door and the willpower to shut the door. Each of these recommendations is entirely in tune with Boice and Gray.

Then there's setting a target. King says to have a concrete goal. He recommends a daily writing target. To make this easy to start with, he suggests a target of 1000 words per day, six days a week. King doesn't say what his personal target is, but

¹⁸ Stephen King, *On Writing: A Memoir of the Craft* (London: Hodder & Stoughton, 2000).

¹⁹ *Ibid.*, 164, 176–177, 180.

obviously it's quite a bit more! That's much more than the target set by Gray.

The difference is that King is writing fiction. It's possible for full-time fiction writers to produce hundreds of thousands of words — several books worth — per year. In writing academic articles and books, there's a lot more work in doing the research. If you wrote several scholarly books per year, based on your own original research, you would indeed be extraordinary. In fact, just one scholarly book per year would make you an academic star. So King's recommendations, when translated into the scholarly realm, are more modest. The key point is that he recommends a daily target, something to aim at nearly every day of the year.

Tharp

Twyla Tharp is a highly acclaimed US dancer and choreographer who has written a book titled *The Creative Habit*.²⁰ Choreography — designing routines for dancers in dance productions — is different from writing, of course, but there's an important similarity: the need to be creative.

In the creative arts, such as painting and drama, belief in spontaneous inspiration is even more common than among academic writers. Tharp challenges this belief, asserting instead the importance of habit. Indeed, her book is titled *The Creative Habit* with the subtitle *Learn It and Use It for Life: A Practical Guide*.

She says the key to creativity is discipline, specifically in maintaining daily habits. She states “Creativity is a habit, and the best creativity is a result of good work habits.” In her picture,

²⁰ Twyla Tharp with Mark Reiter, *The Creative Habit: Learn It and Use It for Life. A Practical Guide* (New York: Simon & Schuster, 2003).

genius is a consequence of good work habits: she says “There are no ‘natural’ geniuses.”²¹

Tharp tells about her own creative endeavours, emphasising what has worked for her to develop suitable habits for ongoing creativity. She recommends being well organised and building up an archive of materials relevant to creative projects. For each of her own projects, she keeps a box filled with everything related to the project, to stimulate her thinking.

She gives examples of other artists who were organised — for example Beethoven. The usual image of Beethoven is of a renegade who periodically produced brilliant work, such as symphonies and string quartets, out of a volcanic imagination. Tharp says that contrary to the image, Beethoven was very well organised, carrying around a notebook to jot down fragments of melody when they occurred to him and using them at a later time.

Tharp, in recommending habit as the core of creativity, has many recommendations that are directly parallel to what Boice and Gray say about writing. For example, Tharp says all creators need to keep practising their skills and the greatest performers practise the most. Tharp's job is to design dance steps for others, but practises her own dance skills daily. The foundation for her creativity is an understanding acquired through her own body.

She recommends setting a creative quota — and stopping before exhaustion. Indeed, she says it is crucial to know when to stop. This reminded me of Boice's chapter titled “Stop.”

I picked out Tharp's book because of her emphasis on habit. Tharp is just one voice, but an important one in her argument that habit is the key to creativity.

²¹ *Ibid.*, 7.

Tactics

Let's assume that becoming a productive researcher is a good thing — it won't be for everybody or for every topic, but in general it seems more worthwhile than being a low-output researcher whose quality is no better.

What things need to be done to help promote being a productive researcher? The central goal of the Boice-Gray approach is to make writing — taken to be the core element — a habit. That much is obvious. But how is the habit to be developed and maintained? Let me spell out the connections between their approach and five methods for promoting writing: awareness, valuing, understanding, endorsement and action. As discussed in chapter 1, these are the same five methods also relevant for promoting other good things, like happiness and health.

Awareness In order to turn something into a habit, when it wasn't a habit before, you need to become aware of it and the things necessary to promote it. At the beginning of the writing programme, the key element is setting priorities, for example putting times for daily writing in your diary. Making something a priority requires awareness, otherwise it gets downgraded in importance and postponed.

Boice adds another element of awareness. Just before you begin to write, he says to pause for a few seconds and think about what you're doing. This is a form of mindfulness.

Valuing Regular writing needs to be valued, for example by being associated with other good things, such as good text, publication and recognition by colleagues.

Some people can obtain validation internally, from simply telling themselves what they are doing is worthwhile. But for

most people, some external validation is important. Down the track, after writing an article and sending it to a journal, you can be encouraged by comments from reviewers, editors and readers. But this feedback can be very delayed. To maintain the writing habit, especially at the beginning, something more immediate is helpful, such as a regular meeting with a supportive supervisor or mentor or a weekly session with other writers. This, I've found, is a vital part of the writing programme.

Understanding Few people will undertake regular writing unless they believe it will be effective. The features of the writing programme need to be explained and justified.

Most researchers are used to binge writing. That's how they operated as undergraduates and that's the way everyone else does it. They believe in it. So to be convinced to adopt regular writing, there need to be good reasons. Boice and Gray offer several. The most important is that it works. Why? Because regular writing overcomes blockages, stimulates ideas and reduces work by sharpening the focus on what needs to be done. The point here is that to promote the writing programme, it helps to understand why it works.

Endorsement People are more likely to undertake and continue with the writing programme if it has authoritative backing.

This is the weakest link in promotion of writing programmes. After all, who has ever heard of Robert Boice or Tara Gray? As scholars, they aren't all that high profile, and certainly not outside their own fields. If, instead, the programme was backed by the likes of Noam Chomsky, Jacques Derrida, bell hooks and Vandana Shiva — or, closer to home, individuals in your own field who are incredibly productive and highly respected — then a lot more people would take it seriously.

My guess is that many prominent scholars do something akin to the writing programme, namely working every day on their writing. But none of them has formulated a writing programme nor even revealed their daily habits.

To gain authority, the programme needs to be advocated by people with credibility. I could do this pretty well with my own PhD students and with other research students in my faculty because I have a good research output, am a senior figure and had built up credibility by running other sorts of workshops for research students. And I adopted the programme myself.

The trouble is, most senior researchers have well-established habits. They are actually less likely to adopt the writing programme, because it's harder to change a long-standing habit and they have less to gain because they are already productive.

Action The most important step in becoming a writer is — just write! If possible, this should be for intrinsic reasons, not because someone is telling you to do it. When you write regularly, both the experience of writing and seeing what you've accomplished provide motivation to keep going.

To maintain motivation, the easiest way is to create external conditions to ensure doing it. That's the reason for a schedule, a plan for what you're going to write, a place to write, a log of words and minutes, and an obligation to send the totals to a mentor. Rather than use limited willpower each day to decide to write, it's easier to use willpower to establish a set of encouragements and constraints that make writing a routine, ordinary thing like brushing your teeth or getting dressed.

These five elements — awareness, valuing, understanding, endorsement and action — are positive steps in creating a

writing habit. There's another side to each one: countering negative factors, namely the threats and temptations that prevent development of a habit and derail existing habits. These are straightforward, and include:

- Distractions and other priorities that reduce awareness
- Critics and envious friends who interrupt and undermine regular effort towards superior performance
- Know-it-alls who pontificate on why regular writing won't work and who glorify destructive practices, from drugs to bingeing
- Beliefs in the primacy of talent and the irrelevance of talentless persistence
- Beliefs in inspiration and spontaneity as the source of good writing
- Perfectionism

Each of these negative elements is worth detailed examination. For example, distractions include email, telephone, web surfing, television, friends, children and a host of other activities, depending on the person. Any of these can be worthwhile in their own terms but, when your priority is writing, they are deadly.

Conclusion

The Boice-Gray writing programme is a powerful means for researchers to become more productive. To the extent that writing is a good thing, then the programme is good too. Boice presents the writing programme as one aspect of a wider way to approach many tasks in life, namely mindfully.²² The programme can be readily mapped onto the five methods for

²² Boice, *Advice for New Faculty Members*.

promoting good things: awareness, valuing, understanding, endorsement and action.

Regular writing is a powerful tool, but for many it is extremely challenging. The temptations of procrastination are powerful. Therefore, rather than relying on willpower every day, the key to the programme is to establish conditions in your life that help develop and maintain a habit. These include finding a dedicated place and time for writing, keeping tallies of minutes spent and words written, and reporting totals to a mentor. The task of undertaking writing sessions that are brief and regular helps reduce psychological resistance to starting, which is often the greatest barrier. Putting these steps into place can make it far easier to establish and maintain a habit that leads to high productivity.

However, only a few writers find themselves in the fortunate position of being encouraged and supported to make these sorts of arrangements. The wider social circumstances are not particularly supportive — indeed, they are at the foundation of bingeing behaviour. Boice says that established writers and editors are actually unsympathetic, as they think people who aren't publishing don't have anything to say. He quotes one editor as saying, concerning a writing programme, "Why bother? Too much is already being written and good writers don't need help."²³ This sort of view, which Boice calls "elitist," assumes that writers are born, not made.

The Boice-Gray programme is threatening to this sort of elitist attitude, because it is based on the assumption that good writing is an acquired skill and that, with the right conditions, just about anyone who works at becoming a better writer can do

²³ Boice, *Professors as Writers*, 126.

so. Furthermore, having something to say comes, in part, from practising saying things.

Until cultural attitudes change, developing and maintaining the writing habit will be restricted to relatively few. But the ideas are now available to anyone, so awareness, valuing and understanding are likely to increase, if only gradually. All that's required is the action.

Appendix: expert performance

Many people believe natural talent plays a big role in whether someone can achieve at the highest levels. Think of famous figures in the arts and sciences, such as Mozart and Einstein. Surely they had natural talent. They were geniuses, otherwise they couldn't possibly have produced such beautiful music and such profound scientific breakthroughs. This is a common line of thinking, anyway: geniuses are born with innate gifts. If so, there's not much point in the rest of us trying too hard, because without the right genes we have no chance of doing something really outstanding.

But there's an alternative viewpoint. Michael Howe in his book *Genius Explained* says that geniuses benefit from special circumstances and opportunities. But he also argues that anyone who is seen as a genius spends a huge amount of time practising their skills, constantly working to improve and getting good feedback along the way.²⁴ The examples he uses to support his

²⁴ Michael J. A. Howe, *Genius Explained* (Cambridge: Cambridge University Press, 1999). See also Howard Gardner, *Creating Minds: An Anatomy of Creativity Seen through the Lives of Freud, Einstein, Picasso, Stravinsky, Eliot, Graham, and Gandhi* (New York: Basic-Books, 1993).

argument include inventor Michael Faraday and scientists Charles Darwin and Albert Einstein.

Howe also discusses the Brontë sisters. Charlotte Brontë's novel *Jane Eyre* and Emily Brontë's novel *Wuthering Heights* are recognised as masterpieces, produced at fairly young ages. But did Charlotte and Emily burst into writing scene with great works? No — they had years of prior practice. It wasn't training in the usual sense of being drilled. From about the age of ten, they and their sister Anne and brother Branwell wrote fantasy stories for each other, with little outside scrutiny. They started at an elementary level, like anyone else beginning to write, and gradually improved their skills. The years of constant writing laid the foundation for their greatest works.

Howe, having analysed the phenomenon of genius through the lives of famous figures, concluded that the evidence is compatible with the proposition that geniuses are made, not born. Another way to test this claim is to look for someone who is different: someone who achieves at a high level without having to work as hard as the others. Investigators looking for someone with natural talent went into a violin academy, where hundreds of youngsters live and breathe music, most of them hoping for a career as a performing violinist or, if not that, a music teacher. The investigators examined the practice routines of the students at the academy. If natural musical talent exists, they reasoned, they should find some top students who don't need to practise as much as the others. But there weren't any such top students. The students performing at the highest level had spent more hours practising their violins than those at a lower performance level. The evidence thus suggested that the

key to becoming an outstanding musician is thousands of hours of practice.²⁵

The role of practice is often hidden, for two main reasons. One is that when people believe in natural talent, they discount the effect of practice. Another is that many people hide their own hard work from others and sometimes from themselves. Many students feel comfortable saying "I didn't study much for that exam" but are less likely to want to say "I've been studying really hard for that exam." Why? Often it's because they believe in talent too.

Carol Dweck, a psychologist, has studied the effects of beliefs about the causes of success. In her book *Mindset* she distinguishes between two main ways of thinking that she calls the fixed and growth mindsets.²⁶ A person with a fixed mindset believes talent or ability reflects an innate capacity, for example that some people are naturally good at sports and some will never be any good no matter how hard they try, or that some people are smart and some are not so smart. A lot of people buy into this, for example when they say "Michael Jordan — he was a natural" or "I'm no good at mathematics." A person with the growth mindset believes, on the other hand, that success is the result of hard work, so the key to achievement is persistence.²⁷

25 K. Anders Ericsson, Ralf Th. Krampe and Clemens Tesch-Römer, "The role of deliberate practice in the acquisition of expert performance," *Psychological Review*, 100(3), 1993, 363–406. The authors used a much more rigorous research design than my description suggests.

26 Carol S. Dweck, *Mindset: The New Psychology of Success* (New York: Ballantine, 2006).

27 On the importance of persistence for success among physicists, see Joseph C. Hermanowicz, "What does it take to be successful?" *Science, Technology, & Human Values*, 31, 2006, 135–152.

Dweck realises that people aren't stuck in either a fixed or growth mindset. For example, they might have a fixed mindset about success in mathematics but a growth mindset about success in accountancy, or have a position in the middle. But for many purposes, especially understanding the effects of mindsets, it's useful to concentrate on the ends of the spectrum of belief.

People with a fixed mindset are often worried about failure, because failure might reveal that actually they are no good — and that's disastrous to their self-image. If you have no natural talent, what's the use of trying? If you think you have no mathematical ability, why bother trying to solve a few equations? You'll just embarrass yourself by your ineptitude.

The effects of having a fixed mindset are even worse in areas where you think you're good. For those with a fixed mindset, it's sometimes better not to try than to try and not succeed, because maintaining a belief in your own natural ability is crucial. Dweck gives examples of top performers with a fixed mindset, for example the tennis star John McEnroe who would throw tantrums when he was losing, blaming someone or something for his problems. McEnroe refused to compete in mixed doubles for 20 years after one serious loss.²⁸

The growth mindset leads to a very different set of responses. If you didn't do so well in the swimming race, it means that you need to do more training, or refine your stroke, or adjust your tactics. Failure doesn't signify anything about innate capacity, only about what happened on this particular occasion. With a growth mindset, you might say "I never put much effort into mathematics." If you wanted to become better, you would develop a training programme.

²⁸ Dweck, *Mindset*, 100.

If you want to become an expert performer, you need to work at it. That's what the research shows. Genetics may play a role — you'll never become a championship basketball player if you're short — but genetics alone won't get you all that far. Even those who apparently have loads of natural talent need to work hard. Having a growth mindset is a better foundation for the hard work required, because you're less likely to be stymied by setbacks.

Hard work: it's easy to say, but what does it actually mean? The key, according to Anders Ericsson, a leading researcher into expert performance, is "deliberate practice."²⁹ It basically means practising while you concentrate as hard as you can on doing well and improving.

Let's say you're trying to improve at playing the piano. You sit down for a daily session at the keyboard and start with scales. You've done these thousands of times before, so before long you're daydreaming about an upcoming meeting, or something — your mind is not on the task, because it's so routine. This sort of practice might be good for cementing your mental circuits for playing scales, but it's not much good for making your playing better than before, because you're not concentrating. To become better, you need to concentrate on improvement, and you're more likely to do that when you're working on a challenging piece.

To play a really fast and complicated passage, the usual process is to master it bit by bit, initially playing it slowly enough so every note is correct, and then going over and over it

²⁹ K. Anders Ericsson, "The influence of experience and deliberate practice on the development of superior expert performance," in K. Anders Ericsson, Neil Charness, Paul J. Feltovich and Robert R. Hoffman (eds.), *Cambridge Handbook of Expertise and Expert Performance* (Cambridge: Cambridge University Press, 2006), 685–706.

at a gradually faster speed, periodically going back to a slower tempo when something isn't quite right. You notice that there's a slight unevenness in a group of notes, so you slow down to a glacial pace so you can determine exactly which finger is causing the problem. You get the group of notes just right, then add the ones around it, carefully listening for the overall effect as well as precision in the challenging group. Through all of this, you have to concentrate. This isn't routine like running through scales or playing a familiar piece.

Then you have a lesson with your teacher, who points out a few things you hadn't noticed — you were actually missing a note in one place, getting the timing wrong in another, and sounding a bit too mechanical overall. Your teacher helps you focus on crucial facets of playing so when you practice, you're going in the right direction.

Consider two pianists. One practises hard for an hour per day and builds up to a short performance once a month. The other pianist performs for three hours per day in a cocktail lounge. Which one will improve the most? According to the research on deliberate practice, it will be the one who concentrates the most on improvement, and that will probably be the one-hour-per-day player. The performing pianist can easily get into a routine and has little opportunity to diagnose problems and work carefully on difficult passages until they sound better. The point here is that just playing is not enough to become ever better — you need to practise.

A pianist who performs all the time seldom has an opportunity to slow things down and fix problems, or likewise to push the limits. There's an audience, and the audience expects a decent performance. Concentrating on producing an acceptable performance is good for solidifying what it takes to perform at that level but not to extend it. Great pianists continue to practise

intensively throughout their performing careers, typically several hours per day.

Becoming an expert performer requires laying down circuits in the brain that are highly efficient for the task involved. Every day through your life, new brain cells are created and the connections in your brain are changed. The brain is flexible and adaptable: it is moulded through use and experience.³⁰ Deliberate practice is a process of moulding the brain.

Deliberate practice uses conscious effort to forge brain circuits for unconscious processing. For expert performance, you need to do really complex things without thinking about them — they need to become automatic. But to make them automatic, you first need to concentrate on them. Think of driving a car. When initially learning to drive, you have to pay attention to every detail, like how fast you're going and whether there's enough time for you to turn before another car comes along. So when you're learning, you're concentrating. But as you become familiar with what's required, some of these skills become automatic: conscious attention is no longer needed, so you can talk or daydream while driving. Many drivers have had the experience of arriving at a destination and realising they had no memory of several minutes of their trip — their conscious minds were in another place.

To become more expert, you need to tackle something that is sufficiently difficult to keep you alert. You concentrate, laying down new brain circuits. As a driver, you might take up racing: that requires attention! Or you might set yourself challenges such as minimising acceleration and deceleration or plotting a slightly different route each day. For a musician, you need to

³⁰ Sharon Begley, *The Plastic Mind* (UK: Constable, 2009); Richard Restak, *Mozart's Brain and the Fighter Pilot: Unleashing Your Brain's Potential* (New York: Harmony, 2001).

play ever more difficult pieces and prepare them at higher standards. For chess players, you need to play better opponents and analyse more complex positions.

In summary, developing the capacity for expert performance involves an interplay between conscious and unconscious processing. The goal is to make high-level performance automatic. But to get there, deliberate practice is needed, involving intense concentration — conscious attention — to areas needing improvement or reinforcement. This conscious processing lays the basis for more and more aspects of the performance to become automatic, namely run by the unconscious.

A high-level performer can ignore routine aspects of the job — they are being monitored by the unconscious — and concentrate on advanced aspects. An experienced driver doesn't need to pay special attention to cars nearby but can concentrate on emerging traffic opportunities or risks. A skilled pianist worries less about getting the notes right and can concentrate more on expression and affinity with the audience. A highly rated chess player will automatically notice combinations in the next few moves and concentrate more on creating favourable positions further along.

Deliberate practice can be used in all sorts of fields besides chess, music and sports, for example to develop skills in management and teaching.³¹ Most relevantly here, research on expert performance applies directly to writing.

31 Geoff Colvin, *Talent is Overrated: What Really Separates World-class Performers from Everybody Else* (New York: Penguin, 2010); Daniel Coyle, *The Talent Code. Greatness Isn't Born. It's Grown. Here's How* (New York: Bantam, 2009); David Shenk, *The Genius in All of Us: Why Everything You've Been Told about Genetics, Talent, and IQ Is Wrong* (New York: Doubleday, 2010).

Writing as expert performance

The key to becoming a good writer is deliberate practice, and lots of it over many years — not natural talent or some mystical notion of creativity.

The maximum amount of deliberate practice that people can maintain is about four hours per day. The limit is due to the requirement to maintain concentration. It's quite possible to work on something for six, eight or more hours per day, but not with the same level of attention and effort.

So what does this say about Tara Gray's writing programme in which the target is 15 to 30 minutes per day? That's nowhere near four hours. As mentioned earlier, if you spend 15 minutes writing new words, then editing that text — rewriting, revising, polishing — could easily take an additional 30, 60 or more minutes per day. The second point is that Gray's programme is designed for researchers, who have other things to do besides write, like run experiments and do interviews. Add in the other parts of research and they could easily total many hours per day, of which up to about four might count as deliberate practice, depending on how they are done. Someone who is primarily a writer, rather than a researcher, could spend four hours per day of deliberate practice in writing. Stephen King is an example.

A human's capacity for deliberate practice may be debatable, but that is not the problem for most researchers, for whom the biggest challenge is setting aside any regular time at all for writing. To turn writing into a habit, it's best to start small and gradually build up. Just 15 minutes per day doesn't sound like much, but it's a huge leap from none at all. Research on expert performance and the Boice-Gray approach to writing are completely in tune concerning the importance of practice. There's no substitute for putting words on a page.