

Daniel H. Pink

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When: The Scientific Secrets of Perfect Timing

by Daniel H. Pink

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51 Highlights

Highlight (Yellow) | Location 55

Time isn't the main thing. It's the only thing. —MILES DAVIS

Highlight (Yellow) | Location 178

For you and me, the biological Big Ben is the suprachiasmatic nucleus, or SCN, a cluster of some 20,000 cells the size of a grain of rice in the hypothalamus, which sits in the lower center of the brain. The SCN controls the rise and fall of our body temperature, regulates our hormones, and helps us fall asleep at night and awaken in the morning. The SCN's daily timer runs a bit longer than it takes for the Earth to make one full rotation—about twenty-four hours and eleven minutes.⁴ So our built-in clock uses social cues (office schedules and bus timetables) and environmental signals (sunrise and sunset) to make small adjustments that bring the internal and external cycles more or less in synch, a process called “entrainment.”

Highlight (Yellow) | Location 247

Calls held first thing in the morning turned out to be reasonably upbeat and positive. But as the day progressed, the “tone grew more negative and less resolute.” Around lunchtime, mood rebounded slightly, probably because call participants recharged their mental and emotional batteries, the professors conjectured. But in the afternoon, negativity deepened again, with mood recovering only after the market's closing bell. Moreover, this pattern held “even after controlling for factors such as industry norms, financial distress, growth opportunities, and the news that companies were reporting.”⁸ In other words, even when the researchers factored in economic news (a slowdown in China that hindered a company's exports) or firm fundamentals (a company that reported abysmal quarterly earnings), afternoon calls “were more negative, irritable, and combative” than morning calls.

Highlight (Yellow) | Location 300

Second, these daily fluctuations are more extreme than we realize. “[T]he performance change between the daily high point and the daily low point can be equivalent to the effect on performance of drinking the legal limit of alcohol,” according to Russell Foster, a neuroscientist and chronobiologist at the University of Oxford.¹⁵ Other research has shown that time-of-day effects can explain 20 percent of the variance in human performance on cognitive undertakings.¹⁶

Highlight (Yellow) | Location 323

When Harvard's Francesca Gino and two Danish researchers looked at four years of test results for two million Danish schoolchildren and matched the scores to the time of day the students took the test, they found an interesting, if disturbing, correlation. Students scored higher in the mornings than in the afternoons. Indeed, for every hour later in the day the tests were administered, scores fell a little more. The effects of later-in-the-day testing were similar to having parents with slightly lower incomes or less education—or missing two weeks of a school year.¹⁹ Timing wasn't everything. But it was a big thing.

Highlight (Yellow) | Location 350

The answer goes back to those sentries guarding our cognitive castle. For most of us, mornings are when those guards are on alert, ready to repel any invaders. Such vigilance—often called “inhibitory control”—helps our brains to solve analytic problems by keeping out distractions.²² But insight problems are different. They require less vigilance and fewer inhibitions. That “flash of illuminance” is more likely to occur when the guards are gone. At those looser moments, a few distractions can help us spot connections we might have missed when our filters were tighter. For analytic problems, lack of inhibitory control is a bug. For insight problems, it's a feature.

Highlight (Yellow) | Location 362

In the mornings, during the peak, most of us excel at Linda problems—analytic work that requires sharpness, vigilance, and focus. Later in the day, during the recovery, most of us do better on coin problems—insight work that requires less inhibition and resolve. (Midday troughs are good for very little, as I'll explain in the next chapter.) We are like mobile versions of de Mairan's plant. Our capacities open and close according to a clock we don't control.

Highlight (Yellow) | Location 379

Human beings don't all experience a day in precisely the same way. Each of us has a “chronotype”—a personal pattern of circadian rhythms that influences our physiology and psychology. The Edisons among us are late chronotypes. They wake long after sunrise, detest mornings, and don't begin peaking until late afternoon or early evening. Others of us are early chronotypes. They rise easily and feel energized during the day but wear out by evening. Some of us are owls; others of us are larks.

Highlight (Yellow) | Location 406

Genetics explains at least half the variability in chronotype, suggesting that larks and owls are born, not made.²⁹ In fact, the when of one's birth plays a surprisingly powerful role. People born in the fall and winter are more likely to be larks; people born in the spring and summer are more likely to be owls.

Highlight (Yellow) | Location 465

In short, all of us experience the day in three stages—a peak, a trough, and a rebound. And about three-quarters of us (larks and third birds) experience it in that order. But about one in four people, those whose genes or age make them night owls, experience the day in something closer to the reverse order—recovery, trough, peak.

Highlight (Yellow) | Location 484

About 62 percent of the creators followed the peak-trough-recovery pattern, where serious heads-down work happened in the morning followed by not much work at all, and then a shorter burst of less taxing work. About 20 percent of the sample displayed the reverse pattern—recovering in the mornings and getting down to business much later in the day à la Flaubert.

Highlight (Yellow) | Location 488

For every three peak-trough-rebound patterns, there is one rebound-trough-peak pattern.

Highlight (Yellow) | Location 491

Figure out your type, understand your task, and then select the appropriate time. Is your own hidden daily pattern peak-trough-rebound? Or is it rebound-trough-peak? Then look for synchrony. If you have even modest control over your schedule, try to nudge your most important work, which usually requires vigilance and clear thinking, into the peak and push your second-most important work, or tasks that benefit from disinhibition, into the rebound period. Whatever you do, do not let mundane tasks creep into your peak period.

Highlight (Yellow) | Location 499

Equally important, no matter whether you spend your days making cars or teaching children, beware of that middle period. The trough, as we're about to learn, is more dangerous than most of us realize.

Highlight (Yellow) | Location 625

Drink a glass of water when you wake up. How often during a day do you go eight hours without drinking anything at all? Yet that's what it's like for most of us overnight. Between the water we exhale and the water that evaporates from our skin, not to mention a trip or two to the bathroom, we wake up mildly dehydrated. Throw back a glass of water first thing to rehydrate, control early morning hunger pangs, and help you wake up.

Highlight (Yellow) | Location 801

(Another study of U.S. federal courts found that on the Mondays after the switch to Daylight Saving Time, when people on average lose roughly forty minutes of sleep, judges rendered prison sentences that were about 5 percent longer than the ones they handed down on typical Mondays.¹⁵)

Highlight (Yellow) | Location 815

DeskTime claims to have discovered a golden ratio of work and rest. High performers, its research concludes, work for fifty-two minutes and then break for seventeen minutes.

Highlight (Yellow) | Location 892

Detachment—both psychological and physical—is also critical. Staying focused on work during lunch, or even using one’s phone for social media, can intensify fatigue, according to multiple studies, but shifting one’s focus away from the office has the opposite effect. Longer lunch breaks and lunch breaks away from the office can be prophylactic against afternoon peril.

Highlight (Yellow) | Location 957

As for me, after a few months of experimenting with twenty-minute afternoon naps, I’ve converted. I’ve gone from nap detractor to nap devotee, from someone ashamed to nap to someone who relishes the coffee-then-nap combination known as the “nappuccino.”

Highlight (Yellow) | Location 995

Start by trying three breaks per day. List when you’re going to take those breaks, how long they’re going to last, and what you’re going to do in each. Even better, put the breaks into your phone or computer calendar so one of those annoying pings will remind you. Remember: What gets scheduled gets done.

Highlight (Yellow) | Location 1080

Anders Ericsson is “the world expert on world experts.”⁹ A psychologist who studies extraordinary performers, Ericsson found that elite performers have something in common: They’re really good at taking breaks. Most expert musicians and athletes begin practicing in earnest around nine o’clock in the morning, hit their peak during the late morning, break in the afternoon, and then practice for a few more hours in the evening. For example, the practice pattern of the most accomplished violinists looks like this:

Highlight (Yellow) | Location 1176

The evidence of harm is so massive that in 2014 the American Academy of Pediatrics (AAP) issued a policy statement calling for middle schools and high schools to begin no earlier than 8:30 a.m.⁵ A few years later, the CDC added its voice, concluding that “delaying school start times has the potential for the greatest population impact” in boosting teenage learning and well-being.

Highlight (Yellow) | Location 1214

The school start time issue isn’t new. But because it’s a when problem rather than a what problem such as viruses or terrorism, too many people find it easy to dismiss. “What difference can one hour possibly make?” ask the forty- and fifty-year-olds. Well, for some students, it means the difference between dropping out and completing high school. For others, it’s the difference between struggling with academics and mastering math and language courses—which can later affect their likelihood of going to college or finding a good job. In some cases, this small difference in timing could alleviate suffering and even save lives.

Highlight (Yellow) | Location 1302

Her big discovery: When these men began their careers strongly determined where they went and how far they traveled. Those who entered the job market in weak economies earned less at the beginning of their careers than those who started in strong economies—no big surprise. But this early disadvantage didn't fade. It persisted for as long as twenty years.

Highlight (Yellow) | Location 1426

Four Situations When You Should Go First If you're on a ballot (county commissioner, prom queen, the Oscars), being listed first gives you an edge. Researchers have studied this effect in thousands of elections—from school board to city council, from California to Texas—and voters consistently preferred the first name on the ballot.² If you're not the default choice—for example, if you're pitching against a firm that already has the account you're seeking—going first can help you get a fresh look from the decision-makers.³ If there are relatively few competitors (say, five or fewer), going first can help you take advantage of the “primacy effect,” the tendency people have to remember the first thing in a series better than those that come later.⁴ If you're interviewing for a job and you're up against several strong candidates, you might gain an edge from being first. Uri Simonsohn and Francesca Gino examined more than 9,000 MBA admissions interviews and found that interviewers often engage in “narrow bracketing”—assuming small sets of candidates represent the entire field. So if they encounter several strong applicants early in the process, they might more aggressively look for flaws in the later ones.⁵ Four Situations When You Should Not Go First If you are the default choice, don't go first. Recall from the previous chapter: Judges are more likely to stick with the default late in the day (when they're fatigued) rather than early or after a break (when they're revived).⁶ If there are many competitors (not necessarily strong ones, just a large number of them), going later can confer a small advantage and going last can confer a huge one. In a study of more than 1,500 live Idol performances in eight countries, researchers found that the singer who performed last advanced to the next round roughly 90 percent of the time. An almost identical pattern occurs in elite figure skating and even in wine tastings. At the beginning of competitions, judges hold an idealized standard of excellence, say social psychologists Adam Galinsky and Maurice Schweitzer. As the competition proceeds, a new, more realistic baseline develops, which favors later competitors, who gain the added advantage of seeing what others have done.⁷ If you're operating in an uncertain environment, not being first can work to your benefit. If you don't know what the decision-maker expects, letting others proceed could allow the criteria to sharpen into focus both for the selector and you.⁸ If the competition is meager, going toward the end can give you an edge by highlighting your differences. “If it was a weak day with many bad candidates, it's a really good idea to go last,” says Simonsohn.

Highlight (Yellow) | Location 1478

Sustain your morale with small wins. Taking a new job isn't exactly like recovering from an addiction, but programs such as Alcoholics Anonymous do offer some guidance. They don't order members to embrace sobriety forever but instead ask them to succeed “24 hours at a time,” something Karl Weick noted in his seminal work on “small wins.”¹⁵ Harvard professor Teresa Amabile concurs. After examining 12,000 daily diary entries by several hundred workers, she found that the single largest motivator was making progress in meaningful work.¹⁶ Wins needn't be large to be meaningful. When you enter a new role, set up small “high-probability” targets and celebrate when you hit them. They'll give you the motivation and energy to take on more daunting challenges further down the highway.

Highlight (Yellow) | Location 1504

(Francis-Tan and Mialon also found that the more a couple spent on its wedding and any engagement ring, the more likely they were to divorce.)

Highlight (Yellow) | Location 1558

Study after study across an astonishing range of socioeconomic, demographic, and life circumstances has reached the same conclusion: Happiness climbs high early in adulthood but begins to slide downward in the late thirties and early forties, dipping to a low in the fifties.⁶ (Blanchflower and Oswald found that “subjective well-being among American males bottoms out at an estimated 52.9 years.”⁷) But we recover quickly from this slump, and well-being later in life often exceeds that of our younger years. Elliott Jaques was on the right track but aboard the wrong train. Something does indeed happen to us at midlife, but the actual evidence is far less dramatic than his original speculation.

Highlight (Yellow) | Location 1569

In short, we dip in the middle because we’re lousy forecasters. In youth, our expectations are too high. In older age, they’re too low.⁸

Highlight (Yellow) | Location 1613

In the middle, we relax our standards, perhaps because others relax their assessments of us. At midpoints, for reasons that are elusive but enlightening, we cut corners—as

Highlight (Yellow) | Location 1671

When we reach a midpoint, sometimes we slump, but other times we jump. A mental siren alerts us that we’ve squandered half of our time. That injects a healthy dose of stress—Uh-oh, we’re running out of time!—that revives our motivation and reshapes our strategy. In subsequent research, Gersick confirmed the power of the uh-oh effect. In one experiment, she assembled eight teams of MBA students and assigned them, after fifteen or twenty minutes of reading a design brief, to create a radio commercial in one hour. Then, as in her earlier work, she videotaped the interactions and transcribed the conversations. Every group made an uh-oh comment (“Okay, now we’ve reached the halfway point. Now we’re really in trouble.”) between twenty-eight and thirty-one minutes through the one-hour project. And six of these eight teams made their “most significant progress” during a “concentrated midpoint burst.”

Highlight (Yellow) | Location 1720

Jonah Berger of the University of Pennsylvania and Devin Pope of the University of Chicago analyzed more than 18,000 National Basketball Association games over fifteen years, paying special attention to the games’ scores at halftime. It’s not surprising that teams ahead at halftime won more games than teams that were behind. For example, a six-point halftime lead gives a team about an 80 percent probability of winning the game. However, Berger and Pope detected an exception to the rule: Teams that were behind by just one point were

more likely to win. Indeed, being down by one at halftime was more advantageous than being up by one. Home teams with a one-point deficit at halftime won more than 58 percent of the time. Indeed, trailing by one point at halftime, weirdly, was equivalent to being ahead by two points.²⁰

Highlight (Yellow) | Location 1761

Set interim goals. To maintain motivation, and perhaps reignite it, break large projects into smaller steps. In one study that looked at losing weight, running a race, and accumulating enough frequent-flier miles for a free ticket, researchers found that people's motivation was strong at the beginning and end of the pursuit—but at the halfway mark became “stuck in the middle.”¹ For instance, in the quest to amass 25,000 miles, people were more willing to work hard to accumulate miles when they had 4,000 or 21,000. When they had 12,000, though, diligence flagged. One solution is to get your mind to look at the middle in a different way. Instead of thinking about all 25,000 miles, set a subgoal at the 12,000-mile mark to accumulate 15,000 and make that your focus. In a race, whether literal or metaphorical, instead of imagining your distance from the finish line, concentrate on getting to the next mile marker.

Highlight (Yellow) | Location 1789

Picture one person your work will help. To our midpoint-motivation murderer's row of Hemingway and Seinfeld, let's add Adam Grant, the Wharton professor and author of *Originals* and *Give and Take*. When he's confronted with tough tasks, he musters motivation by asking himself how what he's doing will benefit other people.⁴ The slump of *How can I continue?* becomes the spark of *How can I help?* So if you're feeling stuck in the middle of a project, picture one person who'll benefit from your efforts. Dedicating your work to that person will deepen your dedication to your task.

Highlight (Yellow) | Location 1805

The University of Chicago's Ayelet Fishbach, whose work on Hanukkah candles I described earlier, has found that when team commitment to achieving a goal is high, it's best to emphasize the work that remains. But when team commitment is low, it's wiser to emphasize progress that has already been made even if it's not massive.

Highlight (Yellow) | Location 1821

Prioritize your top goals (the Buffett technique). As billionaires go, Warren Buffett seems like a pretty good guy. He's pledged his multibillion-dollar fortune to charity. He maintains a modest lifestyle. And he continues to work hard well into his eighties. But the Oracle of Omaha also turns out to be oracular in dealing with the midlife slump. As legend has it, one day Buffett was talking with his private pilot, who was frustrated that he hadn't achieved all he'd hoped. Buffett prescribed a three-step remedy. First, he said, write down your top twenty-five goals for the rest of your life. Second, look at the list and circle your top five goals, those that are unquestionably your highest priority. That will give you two lists—one with your top five goals, the other with the next twenty. Third, immediately start planning how to achieve those top five goals. And the other twenty? Get rid of them. Avoid them at all costs. Don't even look at them until you've achieved the top five, which might take a long time. Doing a few important things well is far more likely to propel you out of the slump than a dozen half-assed and half-finished projects are.

Highlight (Yellow) | Location 1852

Write yourself a few paragraphs of self-compassion. We're often more compassionate toward others than we are toward ourselves. But the science of what's called "self-compassion" is showing that this bias can harm our well-being and undermine resilience.¹⁰ That's why people who research this topic increasingly recommend practices like the following. Start by identifying something about yourself that fills you with regret, shame, or disappointment. (Maybe you were fired from a job, flunked a class, undermined a relationship, ruined your finances.) Then write down some specifics about how it makes you feel. Then, in two paragraphs, write yourself an e-mail expressing compassion or understanding for this element of your life. Imagine what someone who cares about you might say. He would likely be more forgiving than you. Indeed, University of Texas professor Kristin Neff suggests you write your letter "from the perspective of an unconditionally loving imaginary friend." But mix understanding with action. Add a few sentences on what changes you can make to your life and how you can improve in the future. A self-compassion letter operates like the converse corollary of the Golden Rule: It offers a way to treat yourself as you would others.

Highlight (Yellow) | Location 1900

For example, to run a marathon, participants must register with race organizers and include their age. Alter and Hershfield found that 9-enders are overrepresented among first-time marathoners by a whopping 48 percent. Across the entire life span, the age at which people were most likely to run their first marathon was twenty-nine. Twenty-nine-year-olds were about twice as likely to run a marathon as twenty-eight-year-olds or thirty-year-olds. Meanwhile, first-time marathon participation declines in the early forties but spikes dramatically at age forty-nine. Someone who's forty-nine is about three times more likely to run a marathon than someone who's just a year older. What's more, nearing the end of a decade seems to quicken a runner's pace. People who had run multiple marathons posted better times at age twenty-nine and thirty-nine than during the two years before or after those ages.²

Highlight (Yellow) | Location 1918

Because the approach of a new decade represents a salient boundary between life stages and functions as a marker of progress through the life span, and because life transitions tend to prompt changes in evaluations of the self, people are more apt to evaluate their lives as a chronological decade ends than they are at other times. 9-enders are particularly preoccupied with aging and meaningfulness, which is linked to a rise in behaviors that suggest a search for or crisis of meaning.

Highlight (Yellow) | Location 2013

The researchers gave half their participants the bad-guy-to-good-guy bio and half the good-guy-to-bad-guy bio, and asked both groups to evaluate Jim's overall moral character. Across multiple versions of the study, people assessed Jim's morality based largely on how he behaved at the end of his life. Indeed, they evaluated a life with twenty-nine years of treachery and six months of goodness the same as a life with twenty-nine years of goodness and six months of treachery. "[P]eople are willing to override a relatively long period of one kind of behavior with a relatively short period of another kind just because it occurred at the end of one's life."²² This "end of life bias," as the researchers call it, suggests that we believe people's true selves are revealed at the end—even if their death is unexpected and the bulk of their lives evinced a far different self.

Highlight (Yellow) | Location 2033

When we leave the workforce, we can lose connections and friends that once enriched our daily lives. When our kids depart home and enter their own act twos, we often see them less and miss them more. When we reach our sixties and seventies, our contemporaries begin dying, extinguishing lifelong relationships and leaving us with fewer peers. The data confirm what we've long suspected: Act three is full of pathos. Old age can be lonely and isolating. It's a sad story. But it's not a true story. Yes, older people have much smaller social networks than when they were younger. But the reason isn't loneliness or isolation. The reason is both more surprising and more affirming. It's what we choose. As we get older, when we become conscious of the ultimate ending, we edit our friends.

Highlight (Yellow) | Location 2050

Carstensen began developing this idea in 1999 when she (and two of her former students) published a paper titled "Taking Time Seriously." "As people move through life," she wrote, "they become increasingly aware that time is in some sense 'running out.' More social contacts feel superficial—trivial—in contrast to the ever-deepening ties of existing close relationships. It becomes increasingly important to make the 'right' choice, not to waste time on gradually diminishing future payoffs."²⁴ Carstensen called her theory "socioemotional selectivity." She argued that our perspective on time shapes the orientation of our lives and therefore the goals we pursue. When time is expansive and open-ended, as it is in acts one and two of our lives, we orient to the future and pursue "knowledge-related goals." We form social networks that are wide and loose, hoping to gather information and forge relationships that can help us in the future. But as the horizon nears, when the future is shorter than the past, our perspective changes. While many believe that older people pine for yesteryear, Carstensen's body of work shows something else. "The primary age difference in time orientation concerns not the past but the present," she wrote.

Highlight (Yellow) | Location 2141

Closings, conclusions, and culminations reveal something essential about the human condition: In the end, we seek meaning.

Highlight (Yellow) | Location 2214

When the workday ends, many of us want to tear away—to pick up children, race home to prepare dinner, or just beeline to the nearest bar. But the science of endings suggests that instead of fleeing we're better off reserving the final five minutes of work for a few small deliberate actions that bring the day to a fulfilling close. Begin by taking two or three minutes to write down what you accomplished since the morning. Making progress is the single largest day-to-day motivator on the job.⁷ But without tracking our "dones," we often don't know whether we're progressing. Ending the day by recording what you've achieved can encode the entire day more positively.

Highlight (Yellow) | Location 2240

As you plan your next vacation, you needn't save all the best for last. But you'll enjoy the vacation more, both in the moment and in retrospect, if you consciously create an elevating final experience.

Highlight (Yellow) | Location 2430

Belongingness, they found, profoundly shapes our thoughts and emotions. Its absence leads to ill effects, its presence to health and satisfaction.⁸

Highlight (Yellow) | Location 2501

The research on the benefits of singing in groups is stunning. Choral singing calms heart rates and boosts endorphin levels.¹⁶ It improves lung function.¹⁷ It increases pain thresholds and reduces the need for pain medication.¹⁸ It even alleviates symptoms of irritable bowel syndrome.¹⁹ Group singing—not just performances but also practices—increases the production of immunoglobulin, making it easier to fight infections.²⁰ In fact, cancer patients who sing in choirs show an improved immune response after just one rehearsal.

Highlight (Yellow) | Location 2508

And while the physiological payoffs are many, the psychological ones might be even greater. Several studies demonstrate that choral singing delivers a significant boost to positive mood.²² It also lifts self-esteem while reducing feelings of stress and symptoms of depression.²³ It enhances one's sense of purpose and meaning, and increases sensitivity toward others.²⁴ And these effects come not from singing per se but from singing in a group. For example, people who sing in choirs report far higher well-being than those who sing solo.

Highlight (Yellow) | Location 2590

Sing in a chorus. Even if you've never been part of a musical group, singing with others will instantly deliver a boost. For choral meetups around the world, go to <https://www.meetup.com/topics/choir/>. Run together. Running with others offers a trifecta of benefits: exercising, socializing, and synching—all in one. Find a running group through websites like the Road Runners Club of America, <http://www.rrca.org/resources/runners/find-a-running-club>.

Highlight (Yellow) | Location 2655

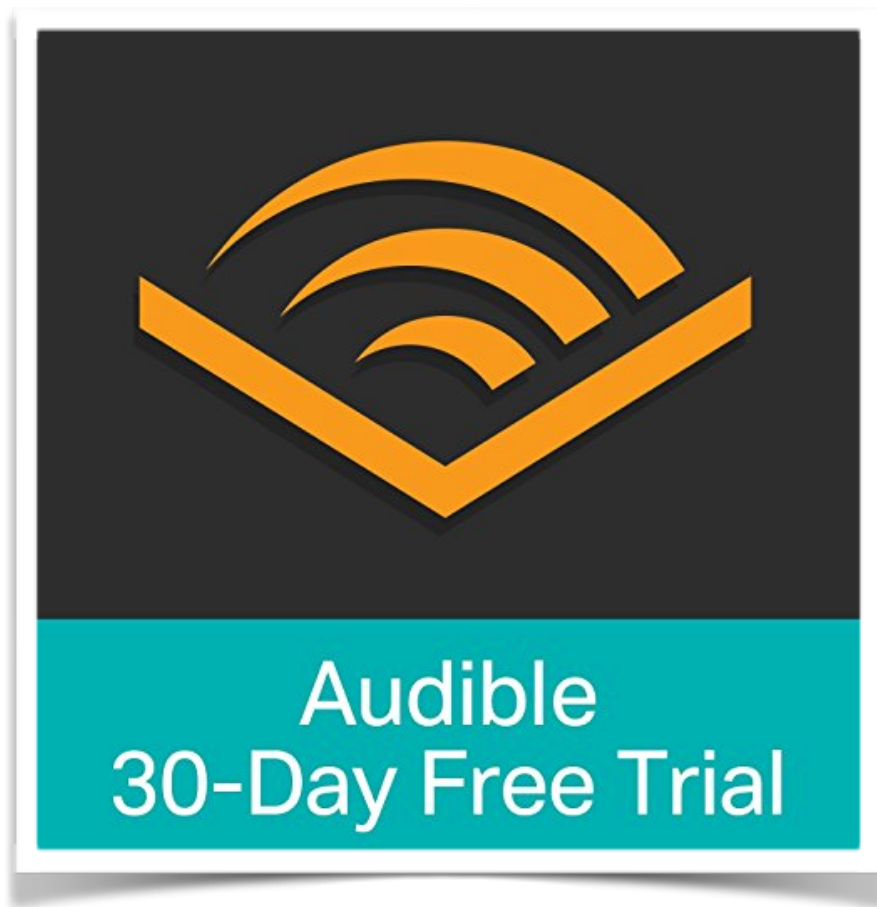
E-mail response time is the single best predictor of whether employees are satisfied with their boss, according to research by Duncan Watts, a Columbia University sociologist who is now a principal researcher for Microsoft Research. The longer it takes for a boss to respond to their e-mails, the less satisfied people are with their leader.
1

Highlight (Yellow) | Location 2760

Strong-future languages such as English, Italian, and Korean require speakers to make sharp distinctions between the present and the future. Weak-future languages such as Mandarin, Finnish, and Estonian draw little or often no contrast at all.

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