



I'll Do It Tomorrow

A penchant for procrastination is damaging the careers, health and savings accounts of millions of Americans. Although biology is partly to blame for the foot-dragging, anyone can learn to kick the habit

By Trisha Gura



BARRY ROSENTHAL/Getty Images (procrastinator); GETTY IMAGES (to-do list)

Raymond Keilor, a high-powered attorney, habitually put off returning important business calls and penning legal briefs, behaviors that seriously threatened his career. Keilor (not his real name) sought help from clinical psychologist William Knaus, who practices in Longmeadow, Mass. As a first step, Knaus gave Keilor a two-page synopsis of

procrastination and asked him to read it “and see if the description applied.” Keilor agreed to do so on a flight to Europe. Instead he watched a movie. He next vowed to read it the first night at his hotel, but he fell asleep early. After that, each day brought something more compelling to do. In the end, Knaus calculated that the lawyer had spent 40 hours delaying a task that would have taken about two minutes to complete.

Almost everyone occasionally procrastinates, which University of Calgary economist Piers Steel defines as voluntarily delaying an intended course of action despite expecting to be worse off for the delay. But like Keilor, a worrisome 15 to 20 percent of adults, the “mañana procrastinators,” routinely put off activities that would be better accomplished ASAP. And according to a 2007 meta-analysis by Steel, procrastination plagues a whopping 80 to 95

percent of college students, whose packed academic schedules and frat-party-style distractions put them at particular risk.

Procrastination does not mean deliberately scheduling less critical tasks for later time slots. The term is more apt when a person fails to adhere to that logic and ends up putting off the tasks of *greater* importance or urgency. That is, if just thinking about tomorrow’s job pricks the hair on the back of your neck or compels you to do something more trivial, you are probably procrastinating.

A penchant for postponement takes its toll. Procrastination carries a financial penalty, endangers health, harms relationships and ends careers. “Procrastination undermines well-being on a wide scale,” notes psychologist Timothy A. Pychyl, director of the Procrastination Research Group at Carleton University in Ottawa. Nevertheless, recent work



Some 40 percent of people have experienced a financial loss due to procrastination. Procrastinators also suffer from higher stress levels and more acute health problems than people who don't waste time.

hints at potential upsides to this otherwise bad habit: perpetual foot-draggers seem to benefit emotionally from their trademark tactics, which support the human inclination to avoid the disagreeable.

Procrastination is learned, but certain hard-wired personality traits increase the likelihood that a person will pick up the habit. "Procrastination is a dance between the brain and the situation," Pychyl says. That nature-and-nurture view is part of

a new line of research into the process [see box on page 00] and prevention of procrastination. Understanding why people put off projects has led to strategies for helping all of us get and stay on task.

Built-in Bias

Procrastination is as old as humans are. For people living in agrarian societies, a late-planted crop could mean starvation. Thus, our ancestors, including Greek poet Hesiod in 800 b.c., equated procrastination with sin or sloth. The industrial revolution may have facilitated the practice of putting off important jobs. Technical advance brings some protection from the forces of storms and famine as well as an increase in leisure time, in consumer goods and in the number of possible *choices* of activities. Contemporary society offers a surfeit of distractions, including computer games, television and electronic messaging—not to mention cars and planes to take us to more stuff to see and do—all enticing us to move off task.

Succumbing to such enticements can be costly. Experts estimate that 40 percent of people have experienced a financial loss because of procrastination, in some cases severe. In 2002 Americans overpaid \$473 million in taxes as a result of rushing and consequent errors. And Americans' dearth of retire-

FAST FACTS

Dissecting Deferment

- 1>> Almost everyone occasionally procrastinates, but a worrisome 15 to 20 percent of adults routinely put off activities that would be better accomplished right away.
- 2>> A penchant for postponement carries a financial penalty, endangers health, harms relationships and ends careers. And yet perpetual foot-draggers sometimes benefit emotionally from their tactics, which support the human inclination to avoid the disagreeable.
- 3>> Research into the reasons people put off projects has led to strategies for helping all of us get and stay on task.

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ment savings can be attributed, in part, to people putting off putting away cash.

Procrastination can also endanger health: after screening more than 19,800 people for high cholesterol, epidemiologist Cynthia Morris and her colleagues at the Oregon Health & Science University reported in 1990 that 35 percent of those who learned they had elevated cholesterol put off consulting a physician for at least five months. In 2006 psychologist Fuschia Sirois of the University of Windsor in Ontario reported in a study of 254 adults that procrastinators had higher stress levels and more acute health problems than did individuals who completed jobs in a timely manner. The procrastinators also received less frequent medical and dental check-ups and had more household accidents, a result of putting off dull jobs such as changing smoke detector batteries.

Task aversiveness is one of the main external triggers for procrastination. Who puts off doing what she loves? According to Steel's meta-analysis, half of the college students surveyed cited the nature of the task itself as the reason they put it off. Undoubtedly, few leap at the chance to write a dissertation about nematode reproduction or clean out the garage. "Procrastination is about not having projects in your life that really reflect your goals," Pychyl says.

The amount of time before a project's due date also influences the tendency to procrastinate. In particular, people are more likely to dawdle when the deadline is far away. The reason for this lies in a phenomenon known as temporal delay, which means the closer a person gets to a reward (or a feeling of accomplishment), the more valuable the reward seems and hence the less likely he is to put off performing the work needed to earn it. In other words, immediate gratification is more motivating than are prizes or accolades to be accrued in the distant future.

Such a preference may have a strong evolutionary basis. The future, for those in the Stone Age, was unpredictable at best. "Thus, there was truth to the saying 'a bird in the hand is worth two in the bush,'" Pychyl says. "For survival, humans have brains with a procrastination bias built in."

In 2004 neuroscientist Barry Richmond and his colleagues at the National Institute of Mental Health reported finding a biological basis for this

bias. Richmond's team first trained monkeys to release a lever whenever a spot on a computer screen turned from red to green. As the monkeys continued to correctly let go of the lever, a gray bar increased in brightness, letting the animals know they were getting closer to a reward, a juice treat. Like human procrastinators, the animals slacked off during early trials, making lots of errors. But when the juice reward came closer, the animals stayed on task and made fewer mistakes.

Richmond's team hypothesized that the neurotransmitter dopamine, which transmits feelings of reward, might underlie this behavior. Working with Richmond, molecular geneticist Edward Ginns used a molecular decoy called DNA anti-sense to partially shut down production of a receptor for dopamine in a region of the monkeys' brains called the rhinal cortex that associates visual cues with reward. The treatment diminished dopamine's effects to the point that the monkeys could no longer predict when any given trial would earn them a juice treat. Thus, they hedged their bets, working hard all the time as if "they are always one trial away from the penultimate," Richmond says.

But not all the monkeys with diminished dopamine responses behaved with the same intensity. Some remained mellow after the dopamine-depressing treatment, failing to put in much effort



A person is more likely to procrastinate if the task is disagreeable. Who jumps at the prospect of washing a heap of dirty clothes?

SWELL MEDIA/GETTY IMAGES

“Procrastination is about not having projects in your life that really reflect your goals,” one scientist says.

even as the time to reward narrowed. That observation speaks to individuality in procrastination: some of us are more prone to it than others.

Getting Personal

At the end of the 20th century, psychologists began studying the so-called big five personality traits that blend to describe any human being: conscientiousness, agreeableness, neuroticism, openness and extroversion. According to Steel, the ex-

last minute, do it poorly, and people won't expect so much of me).

These personality traits, as well as less influential ones, play out in particular situations in conjunction with the environment. Researchers are now trying to capture that nature-nurture interaction to unify existing procrastination theories and to predict who is likely to procrastinate under what circumstances. Steel has derived a mathematical formula that defines "utility," that is how desirable

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tent to which a person displays each of these traits helps to determine that individual's proclivity to procrastinate.

The characteristic most strongly linked to procrastination is conscientiousness—or lack thereof. A highly conscientious person is dutiful, organized and industrious. Therefore, someone who is not conscientious has a high probability of procrastinating. A person who is impulsive also is a procrastinator at risk. "People who are impulsive can't shield one intention from another," Pychyl says. So they are easily diverted by temptations—say, the offer of a beer—that crop up in the middle of a project such as writing a term paper.

Procrastination can also stem from anxiety, an offshoot of neuroticism. Procrastinators postpone getting started because of a fear of failure (*I am so worried that I will bungle this assignment*), the fear of ultimately making a mistake (*I need to make sure the outcome will be perfect*), and the fear of success (*If I do well, people will expect more of me all the time. Therefore, I'll put the assignment off until the*

a task is for an individual. To determine a task's utility and therefore how likely a person is to do it right away, Steel puts together four basic factors, expectancy (E), value (V), the delay until reward or punishment (D), and personal sensitivity to delay (Γ), in the following equation:

$$U = \frac{E \times V}{\Gamma \times D}$$

When a person expects to succeed at or values a particular task, she is more likely to do it. Therefore, a higher number for expectancy or value will increase utility. On the other hand, if a reward or punishment lies far in the future or a person is particularly "sensitive," meaning distractible, impulsive or lacking in self-control, he is less likely to do the task, at least on time. Thus, sensitivity and delay decrease the utility of a task and lead to procrastination.

Several scientists take issue with the idea that complex human behavior can be defined by a mathematical formula. "It leads you to believe that if I put numbers in there," Pychyl says, "I could tell you what you will be doing next Friday." Nevertheless, Steel's equation is an initial attempt to unify various motivational and psychological theories of procrastination and provide a framework for future research.

The Psychology of Delay

Instead of measuring personality traits and solving formulas, some researchers prefer to tease out the psychology behind the behavior. Two key elements in the urge to let projects slide are an uneasy feeling about an activity and a desire to avoid that discomfort. "A procrastinator says, 'I feel lousy about a task,'" Pychyl explains, "and thus walks

Certain personality traits influence the tendency to postpone important jobs. Impulsive people, for instance, are easily diverted by tempting alternatives to dreaded tasks such as sifting through a tower of papers.



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Indecision is also a factor. For instance, vascillating ad infinitum about which color to paint a room could significantly delay the painting itself.

away to feel better.” Psychologist Joseph Ferrari of DePaul University has coined “avoidance procrastinator” to describe a person for whom avoidance is the prime motivator.

Another psychological driver is indecision. An “indecisive procrastinator” cannot make up her mind about executing a task. Say a woman intends to go visit her mother in the hospital. Rather than simply grabbing the keys and heading out, the indecisive procrastinator starts debating whether to drive or to take the train. *The train is a hassle, but parking is expensive and I’ll have to drive back at rush hour. But then again, the train will be packed, too.* The internal debate continues until enough time passes and visiting hours are over.

A third oft-cited motivation for unreasonable delay is arousal. The “arousal procrastinator” swears that he works best under pressure, loving—perhaps needing—the rush of a last-minute deadline to get started. Such a person believes procrastinating affords a “peak” or “flow” experience, defined by psychologist Mihály Csíkszentmihályi of the Drucker School of Management at Claremont Graduate University as being completely involved in an activity for its own sake. Time disappears. The ego dissolves.

But procrastination does not facilitate flow, according to social scientist Eunju Lee of Halla University in South Korea. In 2005 Lee reported surveying 262 students and finding that procrastinators tended to have *fewer*, not more frequent, flow

experiences. After all, a person must be able to let go of herself to “get lost” in an experience, and procrastinators are generally self-conscious individuals who have trouble doing that.

Nor is the thrill of a looming deadline an actual reason people put off uninviting jobs. Pychyl and his graduate student Kyle Simpson measured traits associated with arousal, thrill seeking and extraversion, in students who often procrastinated. In Simpson’s unpublished doctoral thesis, Pychyl and Simpson show that neither of these qualities accounted for the dawdling the students reported. Thus, procrastinators are probably not really in need of arousal, Pychyl says, but use the belief *I need the pressure of a last-minute deadline* to justify dragging their feet, which they do for other reasons, such as circumventing unpleasantness.

Other procrastinators strategically delay projects to excuse poor performance, should it occur. They tell themselves or others, “I could have done better if I had started earlier.” Such a strategy might, in some cases, serve as a shield for a fragile ego.

Tricks of the Trade

Procrastination is not always so maladaptive. In a 2007 survey of 67 self-described college-student

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procrastinators psychologist Gregory Schraw of the University of Nevada, Las Vegas, and his colleagues learned that these students found creative ways of making their bad habit work for them. For example, many students only took classes in which the professor offered a detailed syllabus rather than just a rough sketch of the assignments. Such specificity allowed for “planned” procrastination: the students could schedule how to delay their course work and thereby afford maximum time for more enticing activities.

To cope with the guilt and anxiety brought on by waiting until the last minute, some students acquired all the books for an assignment as soon as it was given and placed them on a shelf. The students said that by shelving the books they “shelved” their discomforting thoughts about the task. They also fended off guilt by telling themselves, “Hey, at least I got the books.” Then, 48 hours before the project was due, the procrastinator dusted off the books and bad feelings and worked in a frenzy to get the assignment done. As a result, the students did the maximum amount of work in a minimum amount of time—with a minimal amount of pain.

So although these students were still putting off the work longer than they should, they were nonetheless managing to finish their assignment while

maintaining their sanity. Schraw emphasizes that his work is not meant to advocate procrastination but to point out that the practice can engender some useful survival skills such as tactical planning to complete a task in limited time and with a minimum amount of stress. “The moral of the story is that people procrastinate so they can lead a better mental life,” Schraw says.

Preventing Procrastination

Not all experts agree with Schraw. Indeed, Steel’s meta-analysis suggests that 95 percent of procrastinators would like to break the habit but cannot, because it has become automatic and ingrained. “Habits become nonconscious brain processes,” Pynchyl says. “When procrastination becomes chronic, a person is, essentially, running on autopilot.”

Some experts suggest replacing the reflex to postpone with time-stamped prescriptions for action. Psychologist Peter Gollwitzer of New York University and the University of Konstanz in Germany advises creating “implementation intentions,” which specify where and when you will perform a specific behavior. So rather than setting a vague goal such as “I will get healthy,” set one with its implementation, including timing, built in—say, “I will go to the health club at 7:30 A.M. tomorrow.”

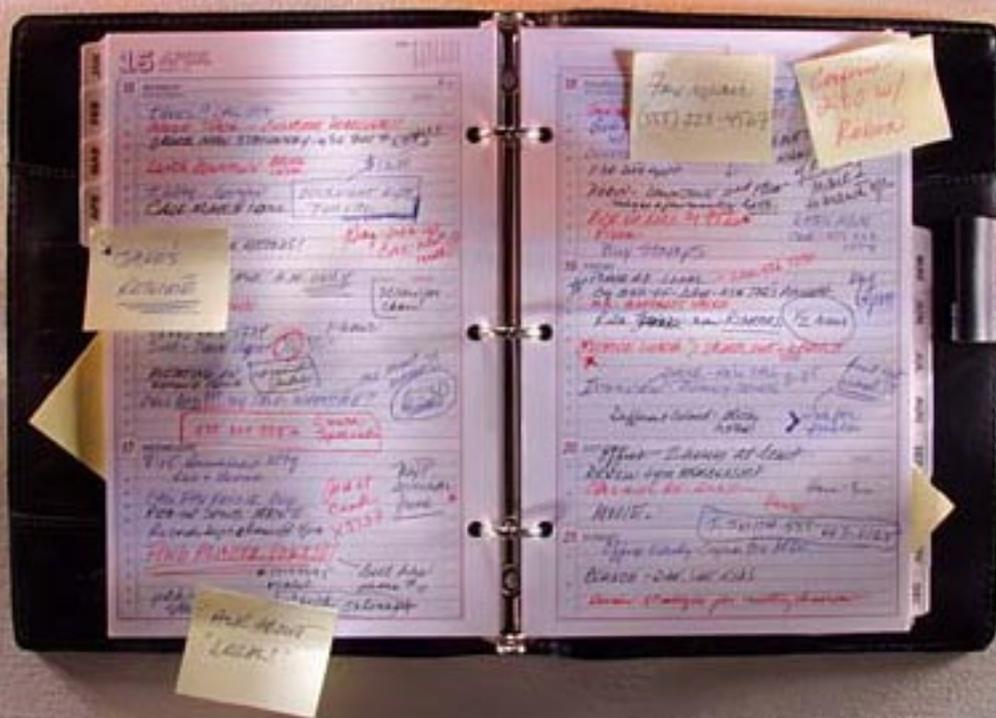
Parsing Postponement

Recognizing when you are procrastinating may help you cut short the dawdling and get started on your pursuit. According to clinical psychologist William Knaus, who practices in Longmeadow, Mass., six steps characterize the process of procrastination:

-  You have an activity with a deadline that comes with a reward if done well or a punishment if not done correctly.
-  You view the activity negatively as boring, unpleasant, threatening or confusing.
-  You magnify the onerousness of the task while discounting the incentives for acting now.
-  To avoid or relieve the discomfort, you substitute another activity such as daydreaming, “organizing” or just about anything involving a computer.
-  You tell yourself that you will get to the task, perhaps tomorrow. Then, when tomorrow comes, you make up another excuse.



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Smart scheduling can prevent procrastination. One strategy could be setting interim deadlines for parts of a long-term project, which can thwart the tendency to put off the work until the last minute.

Setting such specific prescriptions does appear to inhibit the tendency to procrastinate. In 2008 psychologist Shane Owens and his colleagues at Hofstra University demonstrated that procrastinators who formed implementation intentions were nearly eight times as likely to follow through on a commitment than were those who did not create them. “You have to make a specific commitment to a time and place at which to act beforehand,” Owens says. “That will make you more likely to follow through.”

Smart scheduling can also thwart procrastination. In an experiment published in 2002 Duke University behavioral economist Dan Ariely, then at the Massachusetts Institute of Technology, and marketing professor Klaus Wertenbroch of INSEAD, a business school with campuses in France and Singapore, asked students in an executive-education class to set their own deadlines for the three papers due that semester. Ariely and Wertenbroch set penalties for papers turned in after the self-imposed deadlines. Despite the penalties, 70 percent of the students chose deadlines spaced out over the semester, rather than clustering them all at the end. What is more, those who set the early deadlines scored better, on average, than did students in a comparable class in which Ariely set one due date for all three papers at the end of the semester. Such planning can buck any inclination to put off the work. “The deadlines made them better performers,” Ariely says.

More simply, Pychyl advises procrastinators to

“just get started.” The anticipation of the task often is far worse than the task turns out to be. To demonstrate this fact, his group, in work that appeared in 2000, gave 45 students pagers and checked in with the volunteers 40 times over five days to query them about their moods and how often they were putting off a task that had a deadline. “We found that when students actually do the task they are avoiding, their perceptions of the task change significantly. Many times, they actually enjoyed it.”

In Keilor’s case, getting to the task was, indeed, the hard part. Knaus helped him to do that by first determining the reason for his instinct to delay: Keilor feared being tested on the synopsis and looking foolish. So Knaus asked him to pick the lesser of two evils, doing his work—and risking imperfection—or avoiding difficult tasks and losing his job. When Knaus put it that way, the lawyer was able to “just grind it out.” Instead of being fired, Keilor became a “superstar” at his firm. **M**

(Further Reading)

- ◆ **The Procrastination Workbook.** William Knaus. New Harbinger Publications, 2002.
- ◆ **The Nature of Procrastination: A Meta-analytic and Theoretical Review of Quintessential Self-Regulatory Failure.** Piers Steel in *Psychological Bulletin*, Vol. 133, No. 1, pages 65–94; 2007.
- ◆ **Predictably Irrational.** Dan Ariely. HarperCollins, 2008.
- ◆ **Don’t Delay,** Timothy A. Pychyl’s blog in *Psychology Today* online: <http://blogs.psychologytoday.com/blog/dont-delay>