Seven Reasons Carrots and Sticks (Often) Don't Work...

An object in motion will stay in motion, and an object at rest will stay at rest, unless acted on by an outside force.

That's Newton's first law of motion. Like Newton's other laws, this one is elegant and simple—which is part of its power. Even people like me, who bumbled though high school physics, can understand it and can use it to interpret the world.

Motivation 2.0 is similar. At its heart are two elegant and simple ideas:

Rewarding an activity will get you more of it. Punishing an activity will get you less of it.

And just as Newton's principles can help us explain our physical environment or chart the path of a thrown ball, Motivation 2.0's principles can help us comprehend our social surroundings and predict the trajectory of human behavior.

But Newtonian physics runs into problems at the subatomic level. Down there—in the land of hadrons, quarks, and Schrödinger's cat—things get freaky. The cool rationality of Isaac Newton gives way to the bizarre unpredictability of Lewis Carroll. Motivation 2.0 is similar in this regard, too. When rewards and punishments encounter our third drive, something akin to behavioral quantum mechanics seems to take over and strange things begin to happen.

Of course, the starting point for any discussion of motivation in the workplace is a simple fact of life: People have to earn a living. Salary, contract payments, some benefits, a few perks are what I call "baseline rewards." If someone's baseline rewards aren't adequate or equitable, her focus will be on the unfairness of her situation and the anxiety of her circumstance. You'll get neither the predictability of extrinsic motivation nor the weirdness of intrinsic motivation. You'll get very little motivation at all. The best use of money as a motivator is to pay people enough to take the issue of money off the table.

But once we've cleared the table, carrots and sticks can achieve precisely the opposite of their intended aims. Mechanisms designed to increase motivation can dampen it. Tactics aimed at boosting creativity can reduce it. Programs to promote good deeds can make them disappear. Meanwhile, instead of restraining negative behavior, rewards and punishments can often set it loose—and give rise to cheating, addiction, and dangerously myopic thinking.

This is weird. And it doesn't hold in all circumstances (about which more after this chapter). But as Edward Deci's Soma puzzle experiment demonstrates, many practices whose effectiveness we take for granted produce counterintuitive results: They can give us less of what we want—and more of what we don't want. These are
the bugs in Motivation 2.0. And they rise to the surface whether we’re promising rupees in India, charging shekels in Israel, drawing blood in Sweden, or painting portraits in Chicago.

LESS OF WHAT WE WANT

One of the most enduring scenes in American literature offers an important lesson in human motivation. In Chapter 2 of Mark Twain’s The Adventures of Tom Sawyer, Tom faces the dreary task of whitewashing Aunt Polly’s 810-square-foot fence. He’s not exactly thrilled with the assignment. “Life to him seemed hollow, and existence but a burden,” Twain writes.

But just when Tom has nearly lost hope, “nothing less than a great, magnificent inspiration” bursts upon him. When his friend Ben ambles by and mocks Tom for his sorry lot, Tom acts confused. Slapping paint on a fence isn’t a grim chore, he says. It’s a fantastic privilege—a source of, ahem, intrinsic motivation. The job is so captivating that when Ben asks to try a few brushstrokes himself, Tom refuses. He doesn’t relent until Ben gives up his apple in exchange for the opportunity.

Soon more boys arrive, all of whom tumble into Tom’s trap and end up whitewashing the fence—several times over—on his behalf. From this episode, Twain extracts a key motivational principle, namely “that Work consists of whatever a body is OBLIGED to do, and that Play consists of whatever a body is not obliged to do.” He goes on to write:

There are wealthy gentlemen in England who drive four-horse passenger-coaches twenty or thirty miles on a daily line, in the

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summer, because the privilege costs them considerable money; but if they were offered wages for the service, that would turn it into work and then they would resign.¹

In other words, rewards can perform a weird sort of behavioral alchemy: They can transform an interesting task into a drudge. They can turn play into work. And by diminishing intrinsic motivation, they can send performance, creativity, and even upstanding behavior toppling like dominoes. Let’s call this the Sawyer Effect.* A sampling of intriguing experiments around the world reveals the four realms where this effect kicks in.

Intrinsic Motivation

Behavioral scientists like Deci began discovering the Sawyer Effect nearly forty years ago, although they didn’t use that term. Instead, they referred to the counterintuitive consequences of extrinsic incentives as “the hidden costs of rewards.” That, in fact, was the title of the first book on the subject—a 1978 research volume that was edited by psychologists Mark Lepper and David Greene.

One of Lepper and Greene’s early studies (which they carried out with a third colleague, Robert Nisbett) has become a classic in the field and among the most cited articles in the motivation literature. The three researchers watched a classroom of preschoolers for several days and identified the children who chose to spend their “free play” time drawing. Then they fashioned an experiment to test the effect of rewarding an activity these children clearly enjoyed.

*Here’s the two-sided definition of the Sawyer Effect: practices that can either turn play into work or turn work into play.
The researchers divided the children into three groups. The first was the “expected-award” group. They showed each of these children a “Good Player” certificate—adorned with a blue ribbon and featuring the child’s name—and asked if the child wanted to draw in order to receive the award. The second group was the “unexpected-award” group. Researchers asked these children simply if they wanted to draw. If they decided to, when the session ended, the researchers handed each child one of the “Good Player” certificates. The third group was the “no-award” group. Researchers asked these children if they wanted to draw, but neither promised them a certificate at the beginning nor gave them one at the end.

Two weeks later, back in the classroom, teachers set out paper and markers during the preschool’s free play period while the researchers secretly observed the students. Children previously in the “unexpected-award” and “no-award” groups drew just as much, and with the same relish, as they had before the experiment. But children in the first group—the ones who’d expected and then received an award—showed much less interest and spent much less time drawing. The Sawyer Effect had taken hold. Even two weeks later, those alluring prizes—so common in classrooms and cubicles—had turned play into work.

To be clear, it wasn’t necessarily the rewards themselves that dampened the children’s interest. Remember: When children didn’t expect a reward, receiving one had little impact on their intrinsic motivation. Only contingent rewards—if you do this, then you’ll get that—had the negative effect. Why? “If-then” rewards require people to forfeit some of their autonomy. Like the gentlemen driving carriages for money instead of fun, they’re no longer fully controlling their lives. And that can spring a hole in the bottom of their motivational bucket, draining an activity of its enjoyment.

Lepper and Greene replicated these results in several subsequent experiments with children. As time went on, other researchers found similar results with adults. Over and over again, they discovered that extrinsic rewards—in particular, contingent, expected, “if-then” rewards—snuffed out the third drive.

These insights proved so controversial—after all, they called into question a standard practice of most companies and schools—that in 1999 Deci and two colleagues reanalyzed nearly three decades of studies on the subject to confirm the findings. “Careful consideration of reward effects reported in 128 experiments lead to the conclusion that tangible rewards tend to have a substantially negative effect on intrinsic motivation,” they determined. “When institutions—families, schools, businesses, and athletic teams, for example—focus on the short-term and opt for controlling people’s behavior,” they do considerable long-term damage.

Try to encourage a kid to learn math by paying her for each workbook page she completes—and she’ll almost certainly become more diligent in the short term and lose interest in math in the long term. Take an industrial designer who loves his work and try to get him to do better by making his pay contingent on a hit product—and he’ll almost certainly work like a maniac in the short term, but become less interested in his job in the long term. As one leading behavioral science textbook puts it, “People use rewards expecting to gain the benefit of increasing another person’s motivation and behavior, but in so doing, they often incur the unintentional and hidden cost of undermining that person’s intrinsic motivation toward the activity.”

This is one of the most robust findings in social science—and also one of the most ignored. Despite the work of a few skilled and passionate popularizers—in particular, Alfie Kohn, whose prescient 1993 book, Punished by Rewards, lays out a devastating indictment of extrinsic incentives—we persist in trying to motivate people this way. Perhaps we’re scared to let go of Motivation 2.0, despite its
obvious downsides. Perhaps we can't get our minds around the peculiar quantum mechanics of intrinsic motivation.

Or perhaps there's a better reason. Even if those controlling "if-then" rewards activate the Sawyer Effect and suffocate the third drive, maybe they actually get people to perform better. If that's the case, perhaps they're not so bad. So let's ask: Do extrinsic rewards boost performance? Four economists went to India to find out.

High Performance

One of the difficulties of laboratory experiments that test the impact of extrinsic motivators like cash is the cost. If you're going to pay people to perform, you have to pay them a meaningful amount. And in the United States or Europe, where standards of living are high, an individually meaningful amount multiplied by dozens of participants can rack up unsustainably large bills for behavioral scientists.

In part to circumvent this problem, a quartet of economists—including Dan Ariely, whom I mentioned in the last chapter—set up shop in Madurai, India, to gauge the effects of extrinsic incentives on performance. Because the cost of living in rural India is much lower than in North America, the researchers could offer large rewards without breaking their own banks.

They recruited eighty-seven participants and asked them to play several games—for example, tossing tennis balls at a target, unscrambling anagrams, recalling a string of digits—that required motor skills, creativity, or concentration. To test the power of incentives, the experimenters offered three types of rewards for reaching certain performance levels.

One-third of the participants could earn a small reward—4 rupees (at the time equal to about a day's pay in Madurai) for reaching their performance targets. One-third could earn a medium reward—40 rupees (about two weeks' pay). And one-third could earn a very large reward—400 rupees (nearly five months' pay).

What happened? Did the size of the reward predict the quality of the performance?

Yes. But not in the way you might expect. As it turned out, the people offered the medium-sized bonus didn't perform any better than those offered the small one. And those in the 400-rupee super-incentivized group? They fared worst of all. By nearly every measure, they lagged behind both the low-reward and medium-reward participants. Reporting the results for the Federal Reserve Bank of Boston, the researchers wrote, "In eight of the nine tasks we examined across the three experiments, higher incentives led to worse performance."

Let's circle back to this conclusion for a moment. Four economists—two from MIT, one from Carnegie Mellon, and one from the University of Chicago—undertake research for the Federal Reserve System, one of the most powerful economic actors in the world. But instead of affirming a simple business principle—higher rewards lead to higher performance—they seem to refute it. And it's not just American researchers reaching这些 counterintuitive conclusions. In 2009, scholars at the London School of Economics—alma mater of eleven Nobel laureates in economics—analyzed fifty-one studies of corporate pay-for-performance plans. These economists' conclusion: "We find that financial incentives...can result in a negative impact on overall performance." On both sides of the Atlantic, the gap between what science is learning and what business is doing is wide.

"Many existing institutions provide very large incentives for exactly the type of tasks we used here," Ariely and his colleagues wrote. "Our results challenge that assumption. Our experiment suggests...that one cannot assume that introducing or raising incentives always improves performance." Indeed, in many instances,
DRIVE

contingent incentives—that cornerstone of how businesses attempt to motivate employees—may be “a losing proposition.”

Of course, procrastinating writers notwithstanding, few of us spend our working hours flinging tennis balls or doing anagrams. How about the more creative tasks that are more akin to what we actually do on the job?

Creativity

For a quick test of problem-solving prowess, few exercises are more useful than the “candle problem.” Devised by psychologist Karl Duncker in the 1930s, the candle problem is used in a wide variety of experiments in behavioral science. Follow along and see how you do.

You sit at a table next to a wooden wall and the experimenter gives you the materials shown below: a candle, some tacks, and a book of matches.

The key is to overcome what’s called “functional fixedness.” You look at the box and see only one function—as a container for the tacks. But by thinking afresh, you eventually see that the box can have another function—as a platform for the candle. To reprise language from the previous chapter, the solution isn’t algorithmic (following a set path) but heuristic (breaking from the path to discover a novel strategy).

What happens when you give people a conceptual challenge like this and offer them rewards for speedy solutions? Sam Glucksberg, a
psychologist now at Princeton University, tested this in the early 1960s by timing how quickly two groups of participants solved the candle problem. He told the first group that he was timing their work merely to establish norms for how long it typically took someone to complete this sort of puzzle. To the second group he offered incentives. If a participant’s time was among the fastest 25 percent of all the people being tested, that participant would receive $5. If the participant’s time was the fastest of all, the reward would be $20. Adjusted for inflation, those are decent sums of money for a few minutes of effort—a nice motivator.

How much faster did the incentivized group come up with a solution? On average, it took them nearly three and a half minutes longer.\(^7\) Yes, three and a half minutes longer. (Whenever I’ve relayed these results to a group of businesspeople, the reaction is almost always a loud, pained, involuntary gasp.) In direct contravention to the core tenets of Motivation 2.0, an incentive designed to clarify thinking and sharpen creativity ended up clouding thinking and dulling creativity. Why? Rewards, by their very nature, narrow our focus. That’s helpful when there’s a clear path to a solution. They help us stare ahead and race faster. But “if-then” motivators are terrible for challenges like the candle problem. As this experiment shows, the rewards narrowed people’s focus and blinkered the wide view that might have allowed them to see new uses for old objects.

Something similar seems to occur for challenges that aren’t so much about cracking an existing problem but about iterating something new. Teresa Amabile, the Harvard Business School professor and one of the world’s leading researchers on creativity, has frequently tested the effects of contingent rewards on the creative process. In one study, she and two colleagues recruited twenty-three professional artists from the United States who had produced both commissioned and noncommissioned artwork. They asked the artists to randomly select ten commissioned works and ten noncommissioned works. Then Amabile and her team gave the works to a panel of accomplished artists and curators, who knew nothing about the study, and asked the experts to rate the pieces on creativity and technical skill.

“Our results were quite startling,” the researchers wrote. “The commissioned works were rated as significantly less creative than the non-commissioned works, yet they were not rated as different in technical quality. Moreover, the artists reported feeling significantly more constrained when doing commissioned works than when doing non-commissioned works.” One artist whom they interviewed describes the Sawyer Effect in action:

Not always, but a lot of the time, when you are doing a piece for someone else it becomes more “work” than joy. When I work for myself there is the pure joy of creating and I can work through the night and not even know it. On a commissioned piece you have to check yourself—be careful to do what the client wants.\(^8\)

Another study of artists over a longer period shows that a concern for outside rewards might actually hinder eventual success. In the early 1960s, researchers surveyed sophomores and juniors at the School of the Art Institute of Chicago about their attitudes toward work and whether they were more intrinsically or extrinsically motivated. Using these data as a benchmark, another researcher followed up with these students in the early 1980s to see how their careers were progressing. Among the starkest findings, especially for men: “The less evidence of extrinsic motivation during art school, the more success in professional art both several years after graduation and nearly twenty years later.” Painters and sculptors who were intrinsi-
cally motivated, those for whom the joy of discovery and the challenge of creation were their own rewards, were able to weather the tough times—and the lack of remuneration and recognition—that inevitably accompany artistic careers. And that led to yet another paradox in the Alice in Wonderland world of the third drive. “Those artists who pursued their painting and sculpture more for the pleasure of the activity itself than for extrinsic rewards have produced art that has been socially recognized as superior,” the study said. “It is those who are least motivated to pursue extrinsic rewards who eventually receive them.”

The principle holds for scientists as well. In one 2009 study, MIT's Pierre Azoulay and his colleagues compared two different ways to incentivize creativity in the sciences. They examined scientists who received grants from the U.S. National Institutes of Health (NIH), which emphasizes external controls such as “short review cycles, pre-defined deliverables, and renewal policies unforgiving of failure.” Then they looked at scientists at the Howard Hughes Medical Institute (HHMI), whose funding process “tolerates early failure, rewards long-term success, and gives its appointees great freedom to experiment.” The result? HHMI investigators produced high-impact papers at a much higher rate than their similarly accomplished NIH counterparts.

Amabile and others have found that extrinsic rewards can be effective for algorithmic tasks—those that depend on following an existing formula to its logical conclusion. But for more right-brain undertakings—those that demand flexible problem-solving, inventiveness, or conceptual understanding—contingent rewards can be dangerous. Rewarded subjects often have a harder time seeing the periphery and crafting original solutions. This, too, is one of the sturdiest findings in social science—especially as Amabile and others have refined it over the years. For artists, scientists, inventors, schoolchildren, and the rest of us, intrinsic motivation—the drive to do something because it is interesting, challenging, and absorbing—is essential for high levels of creativity. But the “if-then” motivators that are the staple of most businesses often stifle, rather than stir, creative thinking. As the economy moves toward more right-brain, conceptual work—as more of us deal with our own versions of the candle problem—this might be the most alarming gap between what science knows and what business does.

Good Behavior

Philosophers and medical professionals have long debated whether blood donors should be paid. Some claim that blood, like human tissue or organs, is special—that we shouldn't be able to buy and sell it like a barrel of crude oil or a crate of ball bearings. Others argue that we should shelve our squeamishness, because paying for this substance will ensure an ample supply.

But in 1970, British sociologist Richard Titmuss, who had studied blood donation in the United Kingdom, offered a bolder speculation. Paying for blood wasn't just immoral, he said. It was also inefficient. If Britain decided to pay citizens to donate, that would actually reduce the country's blood supply. It was an oddball notion, to be sure. Economists snickered. And Titmuss never tested the idea; it was merely a philosophical hunch.

But a quarter-century later, two Swedish economists decided to see if Titmuss was right. In an intriguing field experiment, they visited a regional blood center in Gothenburg and found 153 women
who were interested in giving blood. Then—as seems to be the custom among motivation researchers—they divided the women into three groups. Experimenters told those in the first group that blood donation was voluntary. These participants could give blood, but they wouldn’t receive a payment. The experimenters offered the second group a different arrangement. If these participants gave blood, they’d each receive 50 Swedish kronor (about $7). The third group received a variation on that second offer: a 50-kronor payment with an immediate option to donate the amount to a children’s cancer charity.

Of the first group, 52 percent of the women decided to go ahead and donate blood. They were altruistic citizens apparently, willing to do a good deed for their fellow Swedes even in the absence of compensation.

And the second group? Motivation 2.0 would suggest that this group might be a bit more motivated to donate. They’d shown up, which indicated intrinsic motivation. Getting a few kronor on top might give that impulse a boost. But—as you might have guessed by now—that’s not what happened. In this group, only 30 percent of the women decided to give blood. Instead of increasing the number of blood donors, offering to pay people decreased the number by nearly half.

Meanwhile, the third group—which had the option of donating the fee directly to charity—responded much the same as the first group. Fifty-three percent became blood donors. *

Titmuss’s hunch might have been right, after all. Adding a monetary incentive didn’t lead to more of the desired behavior. It led to less. The reason: It tainted an altruistic act and “crowded out” the intrinsic desire to do something good. Doing good is what blood donation is all about. It provides what the American Red Cross brochures say is “a feeling that money can’t buy.” That’s why voluntary blood donations invariably increase during natural disasters and other calamities. But if governments were to pay people to help their neighbors during these crises, donations might decline.

That said, in the Swedish example, the reward itself wasn’t inherently destructive. The immediate option to donate the 50-kronor payment rather than pocket it seemed to negate the effect. This, too, is extremely important. It’s not that all rewards at all times are bad. For instance, when the Italian government gave blood donors paid time off work, donations increased. The law removed an obstacle to altruism. So while a few advocates would have you believe in the basic evil of extrinsic incentives, that’s just not empirically true. What is true is that mixing rewards with inherently interesting, creative, or noble tasks—deploying them without understanding the peculiar science of motivation—is a very dangerous game. When used in these situations, “if-then” rewards usually do more harm than good. By neglecting the ingredients of genuine motivation—autonomy, mastery, and purpose—they limit what each of us can achieve.

MORE OF WHAT WE DON'T WANT

In the upside-down universe of the third drive, rewards can often produce less of the very things they’re trying to encourage. But that’s not the end of the story. When used improperly, extrinsic motivators can have another unintended collateral consequence: They can give us more of what we don’t want. Here, again, what business
does hasn’t caught up with what science knows. And what science is revealing is that carrots and sticks can promote bad behavior, create addiction, and encourage short-term thinking at the expense of the long view.

Unethical Behavior

What could be more valuable than having a goal? From our earliest days, teachers, coaches, and parents advise us to set goals and to work mightily to achieve them—and with good reason. Goals work. The academic literature shows that by helping us tune out distractions, goals can get us to try harder, work longer, and achieve more.

But recently a group of scholars from the Harvard Business School, Northwestern University’s Kellogg School of Management, the University of Arizona’s Eller College of Management, and the University of Pennsylvania’s Wharton School questioned the efficacy of this broad prescription. “Rather than being offered as an ‘over-the-counter’ salve for boosting performance, goal setting should be prescribed selectively, presented with a warning label, and closely monitored,” they wrote. Goals that people set for themselves and that are devoted to attaining mastery are usually healthy. But goals imposed by others—sales targets, quarterly returns, standardized test scores, and so on—can sometimes have dangerous side effects.

Like all extrinsic motivators, goals narrow our focus. That’s one reason they can be effective; they concentrate the mind. But as we’ve seen, a narrowed focus exacts a cost. For complex or conceptual tasks, offering a reward can blinker the wide-ranging thinking necessary to come up with an innovative solution. Likewise, when an extrinsic goal is paramount—particularly a short-term, measurable one whose achievement delivers a big payoff—its presence can restrict our view of the broader dimensions of our behavior. As the cadre of business school professors write, “Substantial evidence demonstrates that in addition to motivating constructive effort, goal setting can induce unethical behavior.”

The examples are legion, the researchers note. Sears imposes a sales quota on its auto repair staff—and workers respond by overcharging customers and completing unnecessary repairs. Enron sets lofty revenue goals—and the race to meet them by any means possible catalyzes the company’s collapse. Ford is so intent on producing a certain car at a certain weight at a certain price by a certain date that it omits safety checks and unleashes the dangerous Ford Pinto.

The problem with making an extrinsic reward the only destination that matters is that some people will choose the quickest route there, even if it means taking the low road.

Indeed, most of the scandals and misbehavior that have seemed endemic to modern life involve shortcuts. Executives game their quarterly earnings so they can snag a performance bonus. Secondary school counselors doctor student transcripts so their seniors can get into college. Athletes inject themselves with steroids to post better numbers and trigger lucrative performance bonuses.

Contrast that approach with behavior sparked by intrinsic motivation. When the reward is the activity itself—deepening learning, delighting customers, doing one’s best—there are no shortcuts. The only route to the destination is the high road. In some sense, it’s impossible to act unethically because the person who’s disadvantaged isn’t a competitor but yourself.

Of course, all goals are not created equal. And—let me emphasize this point—goals and extrinsic rewards aren’t inherently corrupting. But goals are more toxic than Motivation 2.0 recognizes. In fact, the business school professors suggest they should come with their own
warning label: “Goals may cause systematic problems for organization: due to narrowed focus, unethical behavior, increased risk taking, decreased cooperation, and decreased intrinsic motivation. Use care when applying goals in your organization.”

If carrots-as-goals sometimes encourage unworthy behavior, then sticks-as-punishment should be able to halt it, right? Not so fast. The third drive is less mechanistic and more surprising than that, as two Israeli economists discovered at some day care centers.

In 2000, economists Uri Gneezy and Aldo Rustichini studied a group of child care facilities in Haifa, Israel, for twenty weeks.18 The centers opened at 7:30 A.M. and closed at 4:00 P.M. Parents had to retrieve their children by the closing time or a teacher would have to stay late.

During the first four weeks of the experiment, the economists recorded how many parents arrived late each week. Then, before the fifth week, with the permission of the day care centers, they posted the following sign:

**ANNOUNCEMENT:**
**FINE FOR COMING LATE**

As you all know, the official closing time of the day care center is 1600 every day. Since some parents have been coming late, we (with the approval of the Authority for Private Day-Care Centers in Israel) have decided to impose a fine on parents who come late to pick up their children.

As of next Sunday a fine of NS 10* will be charged every time a

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*The fine was per child, so a parent with two children would have to pay twenty Israeli shekels (NS 20) for each instance of tardiness. When the experiment was conducted, ten Israeli shekels was equivalent to about three U.S. dollars.

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child is collected after 1610. This fine will be calculated monthly, it is to be paid together with the regular monthly payment.

Sincerely,

The manager of the day-care center

The theory underlying the fine, said Gneezy and Rustichini, was straightforward: “When negative consequences are imposed on a behavior, they will produce a reduction of that particular response.” In other words, thwack the parents with a fine, and they’ll stop showing up late.

But that’s not what happened. “After the introduction of the fine we observed a steady increase in the number of parents coming late,” the economists wrote. “The rate finally settled, at a level that was higher, and almost twice as large as the initial one.” And in language reminiscent of Harry Harlow’s head scratching, they write that the existing literature didn’t account for such a result. Indeed, the “possibility of an increase in the behavior being punished was not even considered.”

Up pops another bug in Motivation 2.0. One reason most parents showed up on time is that they had a relationship with the teachers—who, after all, were caring for their precious sons and daughters—and wanted to treat them fairly. Parents had an intrinsic desire to be scrupulous about punctuality. But the threat of a fine—like the promise of the kronor in the blood experiment—edged aside that third drive. The fine shifted the parents’ decision from a partly moral obligation (be fair to my kids’ teachers) to a pure transaction (I can buy extra time). There wasn’t room for both. The punishment didn’t promote good behavior; it crowded it out.
Addiction

If some scientists believe that “if-then” motivators and other extrinsic rewards resemble prescription drugs that carry potentially dangerous side effects, others believe they’re more like illegal drugs that foster a deeper and more pernicious dependency. According to these scholars, cash rewards and shiny trophies can provide a delicious jolt of pleasure at first, but the feeling soon dissipates—and to keep it alive, the recipient requires ever larger and more frequent doses.

The Russian economist Anton Suvorov has constructed an elaborate econometric model to demonstrate this effect, configured around what’s called “principal-agent theory.” Think of the principal as the motivator—the employer, the teacher, the parent. Think of the agent as the motivatee—the employee, the student, the child. A principal essentially tries to get the agent to do what the principal wants, while the agent balances his own interests with whatever the principal is offering. Using a blizzard of complicated equations that test a variety of scenarios between principal and agent, Suvorov has reached conclusions that make intuitive sense to any parent who’s tried to get her kids to empty the garbage.

By offering a reward, a principal signals to the agent that the task is undesirable. (If the task were desirable, the agent wouldn’t need a prod.) But that initial signal, and the reward that goes with it, forces the principal onto a path that’s difficult to leave. Offer too small a reward and the agent won’t comply. But offer a reward that’s enticing enough to get the agent to act the first time, and the principal “is doomed to give it again in the second.” There’s no going back. Pay your son to take out the trash—and you’ve pretty much guaranteed the kid will never do it again for free. What’s more, once the initial money buzz tapers off, you’ll likely have to increase the payment to continue compliance.

As Suvorov explains, “Rewards are addictive in that once offered, a contingent reward makes an agent expect it whenever a similar task is faced, which in turn compels the principal to use rewards over and over again.” And before long, the existing reward may no longer suffice. It will quickly feel less like a bonus and more like the status quo—which then forces the principal to offer larger rewards to achieve the same effect.

This addictive pattern is not merely blackboard theory. Brian Knutson, then a neuroscientist at the National Institute on Alcohol Abuse and Alcoholism, demonstrated as much in an experiment using the brain scanning technique known as functional magnetic resonance imaging (fMRI). He placed healthy volunteers into a giant scanner to watch how their brains responded during a game that involved the prospect of either winning or losing money. When participants knew they had a chance to win cash, activation occurred in the part of the brain called the nucleus accumbens. That is, when the participants anticipated getting a reward (but not when they anticipated losing one), a burst of the brain chemical dopamine surged to this part of the brain. Knutson, who is now at Stanford University, has found similar results in subsequent studies where people anticipated rewards. What makes this response interesting for our purposes is that the same basic physiological process—this particular brain chemical surging to this particular part of the brain—is what happens in addiction. The mechanism of most addictive drugs is to send a fusillade of dopamine to the nucleus accumbens. The feeling delights, then dissipates, then demands another dose. In other words, if we watch how people’s brains respond, promising them monetary rewards and giving them cocaine, nicotine, or amphetamines look
disturbingly similar. This could be one reason that paying people to stop smoking often works in the short run. It replaces one (dangerous) addiction with another (more benign) one.

Rewards’ addictive qualities can also distort decision-making. Knutson has found that activation in the nucleus accumbens seems to predict "both risky choices and risk-seeking mistakes." Get people fired up with the prospect of rewards, and instead of making better decisions, as Motivation 2.0 hopes, they can actually make worse ones. As Knutson writes, "This may explain why casinos surround their guests with reward cues (e.g., inexpensive food, free liquor, surprise gifts, potential jackpot prizes)—anticipation of rewards activates the [nucleus accumbens], which may lead to an increase in the likelihood of individuals switching from risk-averse to risk-seeking behavior."22

In short, while that dangled carrot isn't all bad in all circumstances, in some instances it operates similar to a rock of crack cocaine and can induce behavior similar to that found around the craps table or roulette wheel—not exactly what we hope to achieve when we "motivate" our teammates and coworkers.

Short-Term Thinking

Think back to the candle problem again. The incentivized participants performed worse than their counterparts because they were so focused on the prize that they failed to glimpse a novel solution on the periphery. Rewards, we've seen, can limit the breadth of our thinking. But extrinsic motivators—especially tangible, "if-then" ones—can also reduce the depth of our thinking. They can focus our sights on only what's immediately before us rather than what's off in the distance.

Many times a concentrated focus makes sense. If your office building is on fire, you want to find an exit immediately rather than ponder how to rewrite the zoning regulations. But in less dramatic circumstances, fixating on an immediate reward can damage performance over time. Indeed, what our earlier examples—unethical actions and addictive behavior—have in common, perhaps more than anything else, is that they're entirely short-term. Addicts want the quick fix regardless of the eventual harm. Cheaters want the quick win—regardless of the lasting consequences.

Yet even when the behavior doesn't devolve into shortcuts or addiction, the near-term allure of rewards can be harmful in the long run. Consider publicly held companies. Many such companies have existed for decades and hope to exist for decades more. But much of what their executives and middle managers do each day is aimed single-mindedly at the corporation's performance over the next three months. At these companies, quarterly earnings are an obsession. Executives devote substantial resources to making sure the earnings come our just right. And they spend considerable time and brainpower offering guidance to stock analysts so that the market knows what to expect and therefore responds favorably. This laser focus on a narrow, near-term slice of corporate performance is understandable. It's a rational response to stock markets that reward or punish tiny blips in those numbers, which, in turn, affect executives' compensation.

But companies pay a steep price for not extending their gaze beyond the next quarter. Several researchers have found that companies that spend the most time offering guidance on quarterly earnings deliver significantly lower long-term growth rates than
companies that offer guidance less frequently. (One reason: The earnings-obsessed companies typically invest less in research and development.) They successfully achieve their short-term goals, but threaten the health of the company two or three years hence. As the scholars who warned about goals gone wild put it, “The very presence of goals may lead employees to focus myopically on short-term gains and to lose sight of the potential devastating long-term effects on the organization.”

Perhaps nowhere is this clearer than in the economic calamity that gripped the world economy in 2008 and 2009. Each player in the system focused only on the short-term reward—the buyer who wanted a house, the mortgage broker who wanted a commission, the Wall Street trader who wanted new securities to sell, the politician who wanted a buoyant economy during reelection—and ignored the long-term effects of their actions on themselves or others. When the music stopped, the entire system nearly collapsed. This is the nature of economic bubbles: What seems to be irrational exuberance is ultimately a bad case of extrinsically motivated myopia.

By contrast, the elements of genuine motivation that we’ll explore later, by their very nature, defy a short-term view. Take mastery. The objective itself is inherently long-term because complete mastery, in a sense, is unattainable. Even Roger Federer, for instance, will never fully “master” the game of tennis. But introducing an “if-then” reward to help develop mastery usually backfires. That’s why schoolchildren who are paid to solve problems typically choose easier problems and therefore learn less. The short-term prize crowds out the long-term learning.

In environments where extrinsic rewards are most salient, many people work only to the point that triggers the reward—and no further. So if students get a prize for reading three books, many won’t pick up a fourth, let alone embark on a lifetime of reading—just as executives who hit their quarterly numbers often won’t boost earnings a penny more, let alone contemplate the long-term health of their company. Likewise, several studies show that paying people to exercise, stop smoking, or take their medicines produces terrific results at first—but the healthy behavior disappears once the incentives are removed. However, when contingent rewards aren’t involved, or when incentives are used with the proper deftness, performance improves and understanding deepens. Greatness and nearsightedness are incompatible. Meaningful achievement depends on lifting one’s sights and pushing toward the horizon.

**CARROTS AND STICKS: The Seven Deadly Flaws**

1. They can extinguish intrinsic motivation.
2. They can diminish performance.
3. They can crush creativity.
4. They can crowd out good behavior.
5. They can encourage cheating, shortcuts, and unethical behavior.
6. They can become addictive.
7. They can foster short-term thinking.
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