transform these four steps into a practical framework that we can use to design good habits and eliminate bad ones.

I refer to this framework as the *Four Laws of Behavior Change*, and it provides a simple set of rules for creating good habits and breaking bad ones. You can think of each law as a lever that influences human behavior. When the levers are in the right positions, creating good habits is effortless. When they are in the wrong positions, it is nearly impossible.

How to Create a Good Habit
The 1st law (Cue): Make it obvious.
The 2nd law (Craving): Make it attractive.
The 3rd law (Response): Make it easy.
The 4th law (Reward): Make it satisfying.

We can invert these laws to learn how to break a bad habit.

How to Break a Bad Habit
Inversion of the 1st law (Cue): Make it invisible.
Inversion of the 2nd law (Craving): Make it unattractive.
Inversion of the 3rd law (Response): Make it difficult.
Inversion of the 4th law (Reward): Make it unsatisfying.

It would be irresponsible for me to claim that these four laws are an exhaustive framework for changing *any* human behavior, but I think they're close. As you will soon see, the Four Laws of Behavior Change apply to nearly every field, from sports to politics, art to medicine, comedy to management. These laws can be used no matter what challenge you are facing. There is no need for completely different strategies for each habit.

Whenever you want to change your behavior, you can simply ask yourself:

1. How can I make it obvious?
2. How can I make it attractive?
3. How can I make it easy?
4. How can I make it satisfying?

If you have ever wondered, “Why don’t I do what I say I’m going to do? Why don’t I lose the weight or stop smoking or save for retirement or start that side business? Why do I say something is important but never seem to make time for it?” The answers to those questions can be found somewhere in these four laws. The key to creating good habits and breaking bad ones is to understand these fundamental laws and how to alter them to your specifications. Every goal is doomed to fail if it goes against the grain of human nature.

Your habits are shaped by the systems in your life. In the chapters that follow, we will discuss these laws one by one and show how you can use them to create a system in which good habits emerge naturally and bad habits wither away.

Chapter Summary

- A habit is a behavior that has been repeated enough times to become automatic.
- The ultimate purpose of habits is to solve the problems of life with as little energy and effort as possible.
- Any habit can be broken down into a feedback loop that involves four steps: cue, craving, response, and reward.
- The Four Laws of Behavior Change are a simple set of rules we can use to build better habits. They are (1) make it obvious, (2) make it attractive, (3) make it easy, and (4) make it satisfying.

THE 1ST LAW

Make It Obvious

4

The Man Who Didn't Look Right

THE PSYCHOLOGIST GARY Klein once told me a story about a woman who attended a family gathering. She had spent years working as a paramedic and, upon arriving at the event, took one look at her father-in-law and got very concerned.

"I don't like the way you look," she said.

Her father-in-law, who was feeling perfectly fine, jokingly replied, "Well, I don't like your looks, either."

"No," she insisted. "You need to go to the hospital now."

A few hours later, the man was undergoing lifesaving surgery after an examination had revealed that he had a blockage to a major artery and was at immediate risk of a heart attack. Without his daughter-in-law's intuition, he could have died.

What did the paramedic see? How did she predict his impending heart attack?

When major arteries are obstructed, the body focuses on sending blood to critical organs and away from peripheral locations near the surface of the skin. The result is a change in the pattern of distribution of blood in the face. After many years of working with people with heart failure, the woman had unknowingly developed the ability to recognize this pattern on sight. She couldn't explain what it was that she noticed in her father-in-law's face, but she knew something was wrong.

Similar stories exist in other fields. For example, military analysts can identify which blip on a radar screen is an enemy missile and

which one is a plane from their own fleet even though they are traveling at the same speed, flying at the same altitude, and look identical on radar in nearly every respect. During the Gulf War, Lieutenant Commander Michael Riley saved an entire battleship when he ordered a missile shot down—despite the fact that it looked exactly like the battleship's own planes on radar. He made the right call, but even his superior officers couldn't explain how he did it.

Museum curators have been known to discern the difference between an authentic piece of art and an expertly produced counterfeit even though they can't tell you precisely which details tipped them off. Experienced radiologists can look at a brain scan and predict the area where a stroke will develop before any obvious signs are visible to the untrained eye. I've even heard of hairdressers noticing whether a client is pregnant based only on the feel of her hair.

The human brain is a prediction machine. It is continuously taking in your surroundings and analyzing the information it comes across. Whenever you experience something repeatedly—like a paramedic seeing the face of a heart attack patient or a military analyst seeing a missile on a radar screen—your brain begins noticing what is important, sorting through the details and highlighting the relevant cues, and cataloging that information for future use.

With enough practice, you can pick up on the cues that predict certain outcomes without consciously thinking about it. Automatically, your brain encodes the lessons learned through experience. We can't always explain what it is we are learning, but learning is happening all along the way, and your ability to notice the relevant cues in a given situation is the foundation for every habit you have.

We underestimate how much our brains and bodies can do without thinking. You do not tell your hair to grow, your heart to pump, your lungs to breathe, or your stomach to digest. And yet your body handles all this and more on autopilot. You are much more than your conscious self.

Consider hunger. How do you know when you're hungry? You don't necessarily have to see a cookie on the counter to realize that it is time to eat. Appetite and hunger are governed nonconsciously. Your body has a variety of feedback loops that gradually alert you when it is time to eat again and that track what is going on around you and within you. Cravings can arise thanks to hormones and chemicals circulating

through your body. Suddenly, you're hungry even though you're not quite sure what tipped you off.

This is one of the most surprising insights about our habits: you don't need to be aware of the cue for a habit to begin. You can notice an opportunity and take action without dedicating conscious attention to it. This is what makes habits useful.

It's also what makes them dangerous. As habits form, your actions come under the direction of your automatic and nonconscious mind. You fall into old patterns before you realize what's happening. Unless someone points it out, you may not notice that you cover your mouth with your hand whenever you laugh, that you apologize before asking a question, or that you have a habit of finishing other people's sentences. And the more you repeat these patterns, the less likely you become to question what you're doing and why you're doing it.

I once heard of a retail clerk who was instructed to cut up empty gift cards after customers had used up the balance on the card. One day, the clerk cashed out a few customers in a row who purchased with gift cards. When the next person walked up, the clerk swiped the customer's actual credit card, picked up the scissors, and then cut it in half—entirely on autopilot—before looking up at the stunned customer and realizing what had just happened.

Another woman I came across in my research was a former preschool teacher who had switched to a corporate job. Even though she was now working with adults, her old habits would kick in and she kept asking coworkers if they had washed their hands after going to the bathroom. I also found the story of a man who had spent years working as a lifeguard and would occasionally yell "Walk!" whenever he saw a child running.

Over time, the cues that spark our habits become so common that they are essentially invisible: the treats on the kitchen counter, the remote control next to the couch, the phone in our pocket. Our responses to these cues are so deeply encoded that it may feel like the urge to act comes from nowhere. For this reason, we must begin the process of behavior change with awareness.

Before we can effectively build new habits, we need to get a handle on our current ones. This can be more challenging than it sounds because once a habit is firmly rooted in your life, it is mostly

nonconscious and automatic. If a habit remains mindless, you can't expect to improve it. As the psychologist Carl Jung said, "Until you make the unconscious conscious, it will direct your life and you will call it fate."

THE HABITS SCORECARD

The Japanese railway system is regarded as one of the best in the world. If you ever find yourself riding a train in Tokyo, you'll notice that the conductors have a peculiar habit.

As each operator runs the train, they proceed through a ritual of pointing at different objects and calling out commands. When the train approaches a signal, the operator will point at it and say, "Signal is green." As the train pulls into and out of each station, the operator will point at the speedometer and call out the exact speed. When it's time to leave, the operator will point at the timetable and state the time. Out on the platform, other employees are performing similar actions. Before each train departs, staff members will point along the edge of the platform and declare, "All clear!" Every detail is identified, pointed at, and named aloud.*

This process, known as *Pointing-and-Calling*, is a safety system designed to reduce mistakes. It seems silly, but it works incredibly well. Pointing-and-Calling reduces errors by up to 85 percent and cuts accidents by 30 percent. The MTA subway system in New York City adopted a modified version that is "point-only," and "within two years of implementation, incidents of incorrectly berthed subways fell 57 percent."

Pointing-and-Calling is so effective because it raises the level of awareness from a nonconscious habit to a more conscious level. Because the train operators must use their eyes, hands, mouth, and ears, they are more likely to notice problems before something goes wrong.

My wife does something similar. Whenever we are preparing to walk out the door for a trip, she verbally calls out the most essential items in her packing list. "I've got my keys. I've got my wallet. I've got my glasses. I've got my husband."

The more automatic a behavior becomes, the less likely we are to consciously think about it. And when we've done something a thousand times before, we begin to overlook things. We assume that the next time will be just like the last. We're so used to doing what we've always done that we don't stop to question whether it's the right thing to do at all. Many of our failures in performance are largely attributable to a lack of self-awareness.

One of our greatest challenges in changing habits is maintaining awareness of what we are actually doing. This helps explain why the consequences of bad habits can sneak up on us. We need a "point-and-call" system for our personal lives. That's the origin of the Habits Scorecard, which is a simple exercise you can use to become more aware of your behavior. To create your own, make a list of your daily habits.

Here's a sample of where your list might start:

- Wake up
- Turn off alarm
- Check my phone
- Go to the bathroom
- Weigh myself
- Take a shower
- Brush my teeth
- Floss my teeth
- Put on deodorant
- Hang up towel to dry
- Get dressed
- Make a cup of tea

. . . and so on.

Once you have a full list, look at each behavior, and ask yourself, "Is this a good habit, a bad habit, or a neutral habit?" If it is a good habit, write "+" next to it. If it is a bad habit, write "–". If it is a neutral habit, write "=".

For example, the list above might look like this:

- Wake up =
- Turn off alarm =
- Check my phone –
- Go to the bathroom =
- Weigh myself +
- Take a shower +
- Brush my teeth +
- Floss my teeth +
- Put on deodorant +
- Hang up towel to dry =
- Get dressed =
- Make a cup of tea +

The marks you give to a particular habit will depend on your situation and your goals. For someone who is trying to lose weight, eating a bagel with peanut butter every morning might be a bad habit. For someone who is trying to bulk up and add muscle, the same behavior might be a good habit. It all depends on what you're working toward.*

Scoring your habits can be a bit more complex for another reason as well. The labels "good habit" and "bad habit" are slightly inaccurate. There are no good habits or bad habits. There are only effective habits. That is, effective at solving problems. All habits serve you in some way—even the bad ones—which is why you repeat them. For this exercise, categorize your habits by how they will benefit you in the long run. Generally speaking, good habits will have net positive outcomes. Bad habits have net negative outcomes. Smoking a cigarette may reduce stress right now (that's how it's serving you), but it's not a healthy long-term behavior.

If you're still having trouble determining how to rate a particular habit, here is a question I like to use: "Does this behavior help me become the type of person I wish to be? Does this habit cast a vote for

or against my desired identity?" Habits that reinforce your desired identity are usually good. Habits that conflict with your desired identity are usually bad.

As you create your Habits Scorecard, there is no need to change anything at first. The goal is to simply notice what is actually going on. Observe your thoughts and actions without judgment or internal criticism. Don't blame yourself for your faults. Don't praise yourself for your successes.

If you eat a chocolate bar every morning, acknowledge it, almost as if you were watching someone else. *Oh, how interesting that they would do such a thing*. If you binge-eat, simply notice that you are eating more calories than you should. If you waste time online, notice that you are spending your life in a way that you do not want to.

The first step to changing bad habits is to be on the lookout for them. If you feel like you need extra help, then you can try Pointing-and-Calling in your own life. Say out loud the action that you are thinking of taking and what the outcome will be. If you want to cut back on your junk food habit but notice yourself grabbing another cookie, say out loud, "I'm about to eat this cookie, but I don't need it. Eating it will cause me to gain weight and hurt my health."

Hearing your bad habits spoken aloud makes the consequences seem more real. It adds weight to the action rather than letting yourself mindlessly slip into an old routine. This approach is useful even if you're simply trying to remember a task on your to-do list. Just saying out loud, "Tomorrow, I need to go to the post office after lunch," increases the odds that you'll actually do it. You're getting yourself to acknowledge the need for action—and that can make all the difference.

The process of behavior change always starts with awareness. Strategies like Pointing-and-Calling and the Habits Scorecard are focused on getting you to recognize your habits and acknowledge the cues that trigger them, which makes it possible to respond in a way that benefits you.

Chapter Summary

- With enough practice, your brain will pick up on the cues that predict certain outcomes without consciously thinking about it.

- Once our habits become automatic, we stop paying attention to what we are doing.
- The process of behavior change always starts with awareness. You need to be aware of your habits before you can change them.
- Pointing-and-Calling raises your level of awareness from a nonconscious habit to a more conscious level by verbalizing your actions.
- The Habits Scorecard is a simple exercise you can use to become more aware of your behavior.

5

The Best Way to Start a New Habit

IN 2001, RESEARCHERS in Great Britain began working with 248 people to build better exercise habits over the course of two weeks. The subjects were divided into three groups.

The first group was the control group. They were simply asked to track how often they exercised.

The second group was the "motivation" group. They were asked not only to track their workouts but also to read some material on the benefits of exercise. The researchers also explained to the group how exercise could reduce the risk of coronary heart disease and improve heart health.

Finally, there was the third group. These subjects received the same presentation as the second group, which ensured that they had equal levels of motivation. However, they were also asked to formulate a plan for when and where they would exercise over the following week. Specifically, each member of the third group completed the following sentence: "During the next week, I will partake in at least 20 minutes of vigorous exercise on [DAY] at [TIME] in [PLACE]."

In the first and second groups, 35 to 38 percent of people exercised at least once per week. (Interestingly, the motivational presentation given to the second group seemed to have no meaningful impact on behavior.) But 91 percent of the third group exercised at least once per week—more than double the normal rate.

The sentence they filled out is what researchers refer to as an *implementation intention*, which is a plan you make beforehand about

when and where to act. That is, how you *intend* to *implement* a particular habit.

The cues that can trigger a habit come in a wide range of forms—the feel of your phone buzzing in your pocket, the smell of chocolate chip cookies, the sound of ambulance sirens—but the two most common cues are time and location. Implementation intentions leverage both of these cues.

Broadly speaking, the format for creating an implementation intention is:

"When situation X arises, I will perform response Y."

Hundreds of studies have shown that implementation intentions are effective for sticking to our goals, whether it's writing down the exact time and date of when you will get a flu shot or recording the time of your colonoscopy appointment. They increase the odds that people will stick with habits like recycling, studying, going to sleep early, and stopping smoking.

Researchers have even found that voter turnout increases when people are forced to create implementation intentions by answering questions like: "What route are you taking to the polling station? At what time are you planning to go? What bus will get you there?" Other successful government programs have prompted citizens to make a clear plan to send taxes in on time or provided directions on when and where to pay late traffic bills.

The punch line is clear: people who make a specific plan for when and where they will perform a new habit are more likely to follow through. Too many people try to change their habits without these basic details figured out. We tell ourselves, "I'm going to eat healthier" or "I'm going to write more," but we never say when and where these habits are going to happen. We leave it up to chance and hope that we will "just remember to do it" or feel motivated at the right time. An implementation intention sweeps away foggy notions like "I want to work out more" or "I want to be more productive" or "I should vote" and transforms them into a concrete plan of action.

Many people think they lack motivation when what they really lack is clarity. It is not always obvious when and where to take action. Some people spend their entire lives waiting for the time to be right to make an improvement.

Once an implementation intention has been set, you don't have to wait for inspiration to strike. *Do I write a chapter today or not? Do I meditate this morning or at lunch?* When the moment of action occurs, there is no need to make a decision. Simply follow your predetermined plan.

The simple way to apply this strategy to your habits is to fill out this sentence:

I will [BEHAVIOR] at [TIME] in [LOCATION].

- Meditation. I will meditate for one minute at 7 a.m. in my kitchen.
- Studying. I will study Spanish for twenty minutes at 6 p.m. in my bedroom.
- Exercise. I will exercise for one hour at 5 p.m. in my local gym.
- Marriage. I will make my partner a cup of tea at 8 a.m. in the kitchen.

If you aren't sure when to start your habit, try the first day of the week, month, or year. People are more likely to take action at those times because hope is usually higher. If we have hope, we have a reason to take action. A fresh start feels motivating.

There is another benefit to implementation intentions. Being specific about what you want and how you will achieve it helps you say no to things that derail progress, distract your attention, and pull you off course. We often say yes to little requests because we are not clear enough about what we need to be doing instead. When your dreams are vague, it's easy to rationalize little exceptions all day long and never get around to the specific things you need to do to succeed.

Give your habits a time and a space to live in the world. The goal is to make the time and location so obvious that, with enough repetition, you get an urge to do the right thing at the right time, even if you can't say why. As the writer Jason Zweig noted, "Obviously you're never going to just work out without conscious thought. But like a dog salivating at a bell, maybe you start to get antsy around the time of day you normally work out."

There are many ways to use implementation intentions in your life and work. My favorite approach is one I learned from Stanford professor BJ Fogg and it is a strategy I refer to as *habit stacking*.

HABIT STACKING: A SIMPLE PLAN TO OVERHAUL YOUR HABITS

The French philosopher Denis Diderot lived nearly his entire life in poverty, but that all changed one day in 1765.

Diderot's daughter was about to be married and he could not afford to pay for the wedding. Despite his lack of wealth, Diderot was well known for his role as the co-founder and writer of *Encyclopédie*, one of the most comprehensive encyclopedias of the time. When Catherine the Great, the Empress of Russia, heard of Diderot's financial troubles, her heart went out to him. She was a book lover and greatly enjoyed his encyclopedia. She offered to buy Diderot's personal library for £1,000 —more than $150,000 today.* Suddenly, Diderot had money to spare. With his new wealth, he not only paid for the wedding but also acquired a scarlet robe for himself.

Diderot's scarlet robe was beautiful. So beautiful, in fact, that he immediately noticed how out of place it seemed when surrounded by his more common possessions. He wrote that there was "no more coordination, no more unity, no more beauty" between his elegant robe and the rest of his stuff.

Diderot soon felt the urge to upgrade his possessions. He replaced his rug with one from Damascus. He decorated his home with expensive sculptures. He bought a mirror to place above the mantel, and a better kitchen table. He tossed aside his old straw chair for a leather one. Like falling dominoes, one purchase led to the next.

Diderot's behavior is not uncommon. In fact, the tendency for one purchase to lead to another one has a name: the Diderot Effect. The Diderot Effect states that obtaining a new possession often creates a spiral of consumption that leads to additional purchases.

You can spot this pattern everywhere. You buy a dress and have to get new shoes and earrings to match. You buy a couch and suddenly question the layout of your entire living room. You buy a toy for your child and soon find yourself purchasing all of the accessories that go with it. It's a chain reaction of purchases.

Many human behaviors follow this cycle. You often decide what to do next based on what you have just finished doing. Going to the bathroom leads to washing and drying your hands, which reminds you that you need to put the dirty towels in the laundry, so you add laundry

detergent to the shopping list, and so on. No behavior happens in isolation. Each action becomes a cue that triggers the next behavior.

Why is this important?

When it comes to building new habits, you can use the connectedness of behavior to your advantage. One of the best ways to build a new habit is to identify a current habit you already do each day and then stack your new behavior on top. This is called *habit stacking*.

Habit stacking is a special form of an implementation intention. Rather than pairing your new habit with a particular time and location, you pair it with a current habit. This method, which was created by BJ Fogg as part of his Tiny Habits program, can be used to design an obvious cue for nearly any habit.*

The habit stacking formula is:

"After [CURRENT HABIT], I will [NEW HABIT]."

For example:

- Meditation. After I pour my cup of coffee each morning, I will meditate for one minute.
- Exercise. After I take off my work shoes, I will immediately change into my workout clothes.
- Gratitude. After I sit down to dinner, I will say one thing I'm grateful for that happened today.
- Marriage. After I get into bed at night, I will give my partner a kiss.
- Safety. After I put on my running shoes, I will text a friend or family member where I am running and how long it will take.

The key is to tie your desired behavior into something you already do each day. Once you have mastered this basic structure, you can begin to create larger stacks by chaining small habits together. This allows you to take advantage of the natural momentum that comes from one behavior leading into the next—a positive version of the Diderot Effect.

HABIT STACKING

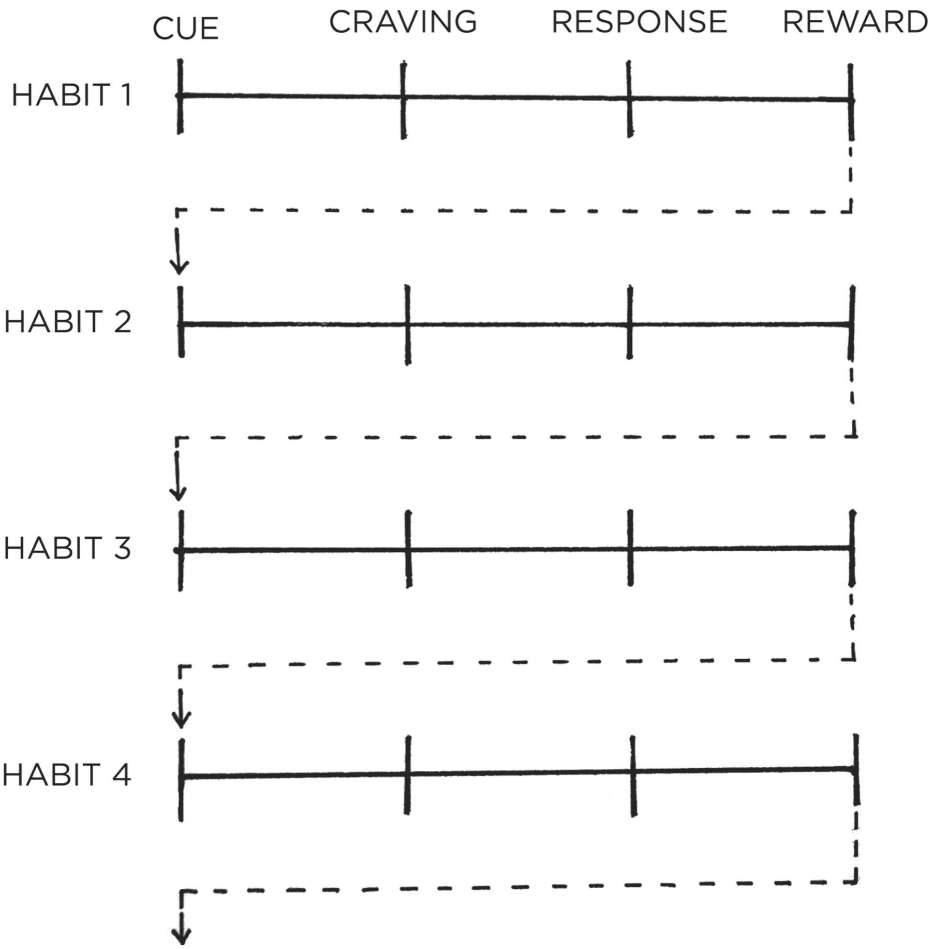

FIGURE 7: Habit stacking increases the likelihood that you'll stick with a habit by stacking your new behavior on top of an old one. This process can be repeated to chain numerous habits together, each one acting as the cue for the next.

Your morning routine habit stack might look like this:

1. After I pour my morning cup of coffee, I will meditate for sixty seconds.
2. After I meditate for sixty seconds, I will write my to-do list for the day.
3. After I write my to-do list for the day, I will immediately begin my first task.

Or, consider this habit stack in the evening:

1. After I finish eating dinner, I will put my plate directly into the dishwasher.
2. After I put my dishes away, I will immediately wipe down the counter.
3. After I wipe down the counter, I will set out my coffee mug for tomorrow morning.

You can also insert new behaviors into the middle of your current routines. For example, you may already have a morning routine that looks like this: Wake up > Make my bed > Take a shower. Let's say you want to develop the habit of reading more each night. You can expand your habit stack and try something like: Wake up > Make my bed > *Place a book on my pillow* > Take a shower. Now, when you climb into bed each night, a book will be sitting there waiting for you to enjoy.

Overall, habit stacking allows you to create a set of simple rules that guide your future behavior. It's like you always have a game plan for which action should come next. Once you get comfortable with this approach, you can develop general habit stacks to guide you whenever the situation is appropriate:

- Exercise. When I see a set of stairs, I will take them instead of using the elevator.
- Social skills. When I walk into a party, I will introduce myself to someone I don't know yet.
- Finances. When I want to buy something over $100, I will wait twenty-four hours before purchasing.
- Healthy eating. When I serve myself a meal, I will always put veggies on my plate first.
- Minimalism. When I buy a new item, I will give something away. ("One in, one out.")
- Mood. When the phone rings, I will take one deep breath and smile before answering.
- Forgetfulness. When I leave a public place, I will check the table and chairs to make sure I don't leave anything behind.

No matter how you use this strategy, the secret to creating a successful habit stack is selecting the right cue to kick things off. Unlike an implementation intention, which specifically states the time and location for a given behavior, habit stacking implicitly has the time and location built into it. When and where you choose to insert a habit into your daily routine can make a big difference. If you're trying to add meditation into your morning routine but mornings are chaotic and your kids keep running into the room, then that may be the wrong place and time. Consider when you are most likely to be successful. Don't ask yourself to do a habit when you're likely to be occupied with something else.

Your cue should also have the same frequency as your desired habit. If you want to do a habit every day, but you stack it on top of a habit that only happens on Mondays, that's not a good choice.

One way to find the right trigger for your habit stack is by brainstorming a list of your current habits. You can use your Habits Scorecard from the last chapter as a starting point. Alternatively, you can create a list with two columns. In the first column, write down the habits you do each day without fail.*

For example:

- Get out of bed.
- Take a shower.
- Brush your teeth.
- Get dressed.
- Brew a cup of coffee.
- Eat breakfast.
- Take the kids to school.
- Start the work day.
- Eat lunch.
- End the work day.
- Change out of work clothes.
- Sit down for dinner.

- Turn off the lights.
- Get into bed.

Your list can be much longer, but you get the idea. In the second column, write down all of the things that happen to you each day without fail. For example:

- The sun rises.
- You get a text message.
- The song you are listening to ends.
- The sun sets.

Armed with these two lists, you can begin searching for the best place to layer your new habit into your lifestyle.

Habit stacking works best when the cue is highly specific and immediately actionable. Many people select cues that are too vague. I made this mistake myself. When I wanted to start a push-up habit, my habit stack was "When I take a break for lunch, I will do ten push-ups." At first glance, this sounded reasonable. But soon, I realized the trigger was unclear. Would I do my push-ups before I ate lunch? After I ate lunch? Where would I do them? After a few inconsistent days, I changed my habit stack to: "When I close my laptop for lunch, I will do ten push-ups next to my desk." Ambiguity gone.

Habits like "read more" or "eat better" are worthy causes, but these goals do not provide instruction on how and when to act. Be specific and clear: After I close the door. After I brush my teeth. After I sit down at the table. The specificity is important. The more tightly bound your new habit is to a specific cue, the better the odds are that you will notice when the time comes to act.

The 1st Law of Behavior Change is to *make it obvious*. Strategies like implementation intentions and habit stacking are among the most practical ways to create obvious cues for your habits and design a clear plan for when and where to take action.

Chapter Summary

- The 1st Law of Behavior Change is *make it obvious*.

- The two most common cues are time and location.
- Creating an implementation intention is a strategy you can use to pair a new habit with a specific time and location.
- The implementation intention formula is: I will [BEHAVIOR] at [TIME] in [LOCATION].
- Habit stacking is a strategy you can use to pair a new habit with a current habit.
- The habit stacking formula is: After [CURRENT HABIT], I will [NEW HABIT].

6

Motivation Is Overrated; Environment Often Matters More

ANNE THORNDIKE, A primary care physician at Massachusetts General Hospital in Boston, had a crazy idea. She believed she could improve the eating habits of thousands of hospital staff and visitors without changing their willpower or motivation in the slightest way. In fact, she didn't plan on talking to them at all.

Thorndike and her colleagues designed a six-month study to alter the "choice architecture" of the hospital cafeteria. They started by changing how drinks were arranged in the room. Originally, the refrigerators located next to the cash registers in the cafeteria were filled with only soda. The researchers added water as an option to each one. Additionally, they placed baskets of bottled water next to the food stations throughout the room. Soda was still in the primary refrigerators, but water was now available at *all* drink locations.

Over the next three months, the number of soda sales at the hospital dropped by 11.4 percent. Meanwhile, sales of bottled water increased by 25.8 percent. They made similar adjustments—and saw similar results—with the food in the cafeteria. Nobody had said a word to anyone eating there.

BEFORE **AFTER**

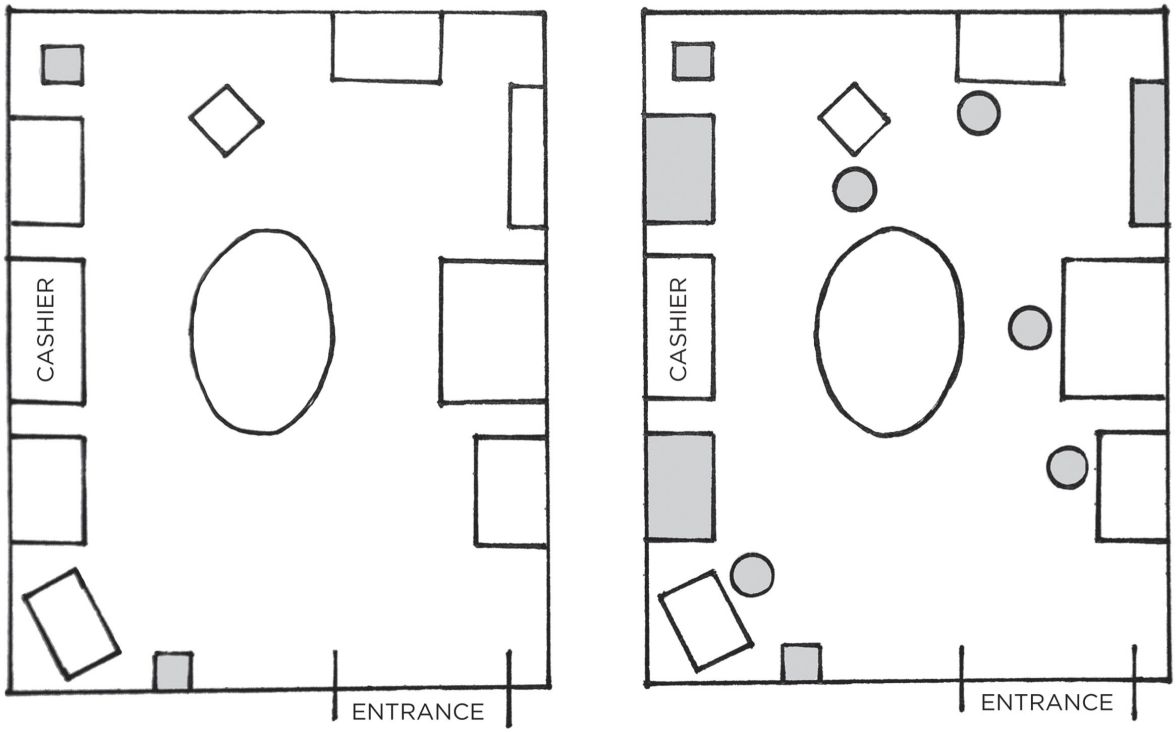

FIGURE 8: Here is a representation of what the cafeteria looked like before the environment design changes were made (left) and after (right). The shaded boxes indicate areas where bottled water was available in each instance. Because the amount of water in the environment was increased, behavior shifted naturally and without additional motivation.

People often choose products not because of *what* they are, but because of *where* they are. If I walk into the kitchen and see a plate of cookies on the counter, I'll pick up half a dozen and start eating, even if I hadn't been thinking about them beforehand and didn't necessarily feel hungry. If the communal table at the office is always filled with doughnuts and bagels, it's going to be hard not to grab one every now and then. Your habits change depending on the room you are in and the cues in front of you.

Environment is the invisible hand that shapes human behavior. Despite our unique personalities, certain behaviors tend to arise again and again under certain environmental conditions. In church, people tend to talk in whispers. On a dark street, people act wary and guarded. In this way, the most common form of change is not internal, but external: we are changed by the world around us. Every habit is context dependent.

In 1936, psychologist Kurt Lewin wrote a simple equation that makes a powerful statement: Behavior is a function of the Person in their Environment, or $B = f(P,E)$.

It didn't take long for Lewin's Equation to be tested in business. In 1952, the economist Hawkins Stern described a phenomenon he called *Suggestion Impulse Buying*, which "is triggered when a shopper sees a product for the first time and visualizes a need for it." In other words, customers will occasionally buy products not because they *want* them but because of how they are *presented* to them.

For example, items at eye level tend to be purchased more than those down near the floor. For this reason, you'll find expensive brand names featured in easy-to-reach locations on store shelves because they drive the most profit, while cheaper alternatives are tucked away in harder-to-reach spots. The same goes for end caps, which are the units at the end of aisles. End caps are moneymaking machines for retailers because they are obvious locations that encounter a lot of foot traffic. For example, 45 percent of Coca-Cola sales come specifically from end-of-the-aisle racks.

The more obviously available a product or service is, the more likely you are to try it. People drink Bud Light because it is in every bar and visit Starbucks because it is on every corner. We like to think that we are in control. If we choose water over soda, we assume it is because we wanted to do so. The truth, however, is that many of the actions we take each day are shaped not by purposeful drive and choice but by the most obvious option.

Every living being has its own methods for sensing and understanding the world. Eagles have remarkable long-distance vision. Snakes can smell by "tasting the air" with their highly sensitive tongues. Sharks can detect small amounts of electricity and vibrations in the water caused by nearby fish. Even bacteria have chemoreceptors —tiny sensory cells that allow them to detect toxic chemicals in their environment.

In humans, perception is directed by the sensory nervous system. We perceive the world through sight, sound, smell, touch, and taste. But we also have other ways of sensing stimuli. Some are conscious, but many are nonconscious. For instance, you can "notice" when the temperature drops before a storm, or when the pain in your gut rises during a stomachache, or when you fall off balance while walking on rocky ground. Receptors in your body pick up on a wide range of internal stimuli, such as the amount of salt in your blood or the need to drink when thirsty.

The most powerful of all human sensory abilities, however, is vision. The human body has about eleven million sensory receptors. Approximately ten million of those are dedicated to sight. Some experts estimate that half of the brain's resources are used on vision. Given that we are more dependent on vision than on any other sense, it should come as no surprise that visual cues are the greatest catalyst of our behavior. For this reason, a small change in what you *see* can lead to a big shift in what you *do*. As a result, you can imagine how important it is to live and work in environments that are filled with productive cues and devoid of unproductive ones.

Thankfully, there is good news in this respect. You don't have to be the victim of your environment. You can also be the architect of it.

HOW TO DESIGN YOUR ENVIRONMENT FOR SUCCESS

During the energy crisis and oil embargo of the 1970s, Dutch researchers began to pay close attention to the country's energy usage. In one suburb near Amsterdam, they found that some homeowners used 30 percent less energy than their neighbors—despite the homes being of similar size and getting electricity for the same price.

It turned out the houses in this neighborhood were nearly identical except for one feature: the location of the electrical meter. Some had one in the basement. Others had the electrical meter upstairs in the main hallway. As you may guess, the homes with the meters located in the main hallway used less electricity. When their energy use was obvious and easy to track, people changed their behavior.

Every habit is initiated by a cue, and we are more likely to notice cues that stand out. Unfortunately, the environments where we live and work often make it easy *not* to do certain actions because there is no obvious cue to trigger the behavior. It's easy *not* to practice the guitar when it's tucked away in the closet. It's easy *not* to read a book when the bookshelf is in the corner of the guest room. It's easy *not* to take your vitamins when they are out of sight in the pantry. When the cues that spark a habit are subtle or hidden, they are easy to ignore.

By comparison, creating obvious visual cues can draw your attention toward a desired habit. In the early 1990s, the cleaning staff at Schiphol Airport in Amsterdam installed a small sticker that looked like a fly near the center of each urinal. Apparently, when men stepped

up to the urinals, they aimed for what they thought was a bug. The stickers improved their aim and significantly reduced "spillage" around the urinals. Further analysis determined that the stickers cut bathroom cleaning costs by 8 percent per year.

I've experienced the power of obvious cues in my own life. I used to buy apples from the store, put them in the crisper in the bottom of the refrigerator, and forget all about them. By the time I remembered, the apples would have gone bad. I never saw them, so I never ate them.

Eventually, I took my own advice and redesigned my environment. I bought a large display bowl and placed it in the middle of the kitchen counter. The next time I bought apples, that was where they went—out in the open where I could see them. Almost like magic, I began eating a few apples each day simply because they were obvious rather than out of sight.

Here are a few ways you can redesign your environment and make the cues for your preferred habits more obvious:

- If you want to remember to take your medication each night, put your pill bottle directly next to the faucet on the bathroom counter.
- If you want to practice guitar more frequently, place your guitar stand in the middle of the living room.
- If you want to remember to send more thank-you notes, keep a stack of stationery on your desk.
- If you want to drink more water, fill up a few water bottles each morning and place them in common locations around the house.

If you want to make a habit a big part of your life, make the cue a big part of your environment. The most persistent behaviors usually have multiple cues. Consider how many different ways a smoker could be prompted to pull out a cigarette: driving in the car, seeing a friend smoke, feeling stressed at work, and so on.

The same strategy can be employed for good habits. By sprinkling triggers throughout your surroundings, you increase the odds that you'll think about your habit throughout the day. Make sure the best choice is the most obvious one. Making a better decision is easy and natural when the cues for good habits are right in front of you.

Environment design is powerful not only because it influences how we engage with the world but also because we rarely do it. Most people live in a world others have created for them. But you can alter the spaces where you live and work to increase your exposure to positive cues and reduce your exposure to negative ones. Environment design allows you to take back control and become the architect of your life. Be the designer of your world and not merely the consumer of it.

THE CONTEXT IS THE CUE

The cues that trigger a habit can start out very specific, but over time your habits become associated not with a single trigger but with the entire *context* surrounding the behavior.

For example, many people drink more in social situations than they would ever drink alone. The trigger is rarely a single cue, but rather the whole situation: watching your friends order drinks, hearing the music at the bar, seeing the beers on tap.

We mentally assign our habits to the locations in which they occur: the home, the office, the gym. Each location develops a connection to certain habits and routines. You establish a particular relationship with the objects on your desk, the items on your kitchen counter, the things in your bedroom.

Our behavior is not defined by the objects in the environment but by our relationship to them. In fact, this is a useful way to think about the influence of the environment on your behavior. Stop thinking about your environment as filled with objects. Start thinking about it as filled with relationships. Think in terms of how you interact with the spaces around you. For one person, her couch is the place where she reads for an hour each night. For someone else, the couch is where he watches television and eats a bowl of ice cream after work. Different people can have different memories—and thus different habits—associated with the same place.

The good news? You can train yourself to link a particular habit with a particular context.

In one study, scientists instructed insomniacs to get into bed only when they were tired. If they couldn't fall asleep, they were told to sit in a different room until they became sleepy. Over time, subjects began

to associate the context of their bed with the action of sleeping, and it became easier to quickly fall asleep when they climbed in bed. Their brains learned that sleeping—not browsing on their phones, not watching television, not staring at the clock—was the only action that happened in that room.

The power of context also reveals an important strategy: habits can be easier to change in a new environment. It helps to escape the subtle triggers and cues that nudge you toward your current habits. Go to a new place—a different coffee shop, a bench in the park, a corner of your room you seldom use—and create a new routine there.

It is easier to associate a new habit with a new context than to build a new habit in the face of competing cues. It can be difficult to go to bed early if you watch television in your bedroom each night. It can be hard to study in the living room without getting distracted if that's where you always play video games. But when you step outside your normal environment, you leave your behavioral biases behind. You aren't battling old environmental cues, which allows new habits to form without interruption.

Want to think more creatively? Move to a bigger room, a rooftop patio, or a building with expansive architecture. Take a break from the space where you do your daily work, which is also linked to your current thought patterns.

Trying to eat healthier? It is likely that you shop on autopilot at your regular supermarket. Try a new grocery store. You may find it easier to avoid unhealthy food when your brain doesn't automatically know where it is located in the store.

When you can't manage to get to an entirely new environment, redefine or rearrange your current one. Create a separate space for work, study, exercise, entertainment, and cooking. The mantra I find useful is "One space, one use."

When I started my career as an entrepreneur, I would often work from my couch or at the kitchen table. In the evenings, I found it very difficult to stop working. There was no clear division between the end of work time and the beginning of personal time. Was the kitchen table my office or the space where I ate meals? Was the couch where I relaxed or where I sent emails? Everything happened in the same place.

A few years later, I could finally afford to move to a home with a separate room for my office. Suddenly, work was something that happened "in here" and personal life was something that happened "out there." It was easier for me to turn off the professional side of my brain when there was a clear dividing line between work life and home life. Each room had one primary use. The kitchen was for cooking. The office was for working.

Whenever possible, avoid mixing the context of one habit with another. When you start mixing contexts, you'll start mixing habits—and the easier ones will usually win out. This is one reason why the versatility of modern technology is both a strength and a weakness. You can use your phone for all sorts of tasks, which makes it a powerful device. But when you can use your phone to do nearly anything, it becomes hard to associate it with one task. You want to be productive, but you're also conditioned to browse social media, check email, and play video games whenever you open your phone. It's a mishmash of cues.

You may be thinking, "You don't understand. I live in New York City. My apartment is the size of a smartphone. I need each room to play multiple roles." Fair enough. If your space is limited, divide your room into activity zones: a chair for reading, a desk for writing, a table for eating. You can do the same with your digital spaces. I know a writer who uses his computer only for writing, his tablet only for reading, and his phone only for social media and texting. Every habit should have a home.

If you can manage to stick with this strategy, each context will become associated with a particular habit and mode of thought. Habits thrive under predictable circumstances like these. Focus comes automatically when you are sitting at your work desk. Relaxation is easier when you are in a space designed for that purpose. Sleep comes quickly when it is the only thing that happens in your bedroom. If you want behaviors that are stable and predictable, you need an environment that is stable and predictable.

A stable environment where everything has a place and a purpose is an environment where habits can easily form.

Chapter Summary

- Small changes in context can lead to large changes in behavior over time.
- Every habit is initiated by a cue. We are more likely to notice cues that stand out.
- Make the cues of good habits obvious in your environment.
- Gradually, your habits become associated not with a single trigger but with the entire context surrounding the behavior. The context becomes the cue.
- It is easier to build new habits in a new environment because you are not fighting against old cues.

7

The Secret to Self-Control

In 1971, as the Vietnam War was heading into its sixteenth year, congressmen Robert Steele from Connecticut and Morgan Murphy from Illinois made a discovery that stunned the American public. While visiting the troops, they had learned that over 15 percent of U.S. soldiers stationed there were heroin addicts. Follow-up research revealed that 35 percent of service members in Vietnam had tried heroin and as many as 20 percent were addicted—the problem was even worse than they had initially thought.

The discovery led to a flurry of activity in Washington, including the creation of the Special Action Office of Drug Abuse Prevention under President Nixon to promote prevention and rehabilitation and to track addicted service members when they returned home.

Lee Robins was one of the researchers in charge. In a finding that completely upended the accepted beliefs about addiction, Robins found that when soldiers who had been heroin users returned home, only 5 percent of them became re-addicted within a year, and just 12 percent relapsed within three years. In other words, approximately nine out of ten soldiers who used heroin in Vietnam eliminated their addiction nearly overnight.

This finding contradicted the prevailing view at the time, which considered heroin addiction to be a permanent and irreversible condition. Instead, Robins revealed that addictions could spontaneously dissolve if there was a radical change in the environment. In Vietnam, soldiers spent all day surrounded by cues triggering heroin use: it was easy to access, they were engulfed by the constant stress of war, they built friendships with fellow soldiers who

were also heroin users, and they were thousands of miles from home. Once a soldier returned to the United States, though, he found himself in an environment devoid of those triggers. When the context changed, so did the habit.

Compare this situation to that of a typical drug user. Someone becomes addicted at home or with friends, goes to a clinic to get clean—which is devoid of all the environmental stimuli that prompt their habit—then returns to their old neighborhood with all of their previous cues that caused them to get addicted in the first place. It's no wonder that usually you see numbers that are the exact opposite of those in the Vietnam study. Typically, 90 percent of heroin users become re-addicted once they return home from rehab.

The Vietnam studies ran counter to many of our cultural beliefs about bad habits because it challenged the conventional association of unhealthy behavior as a moral weakness. If you're overweight, a smoker, or an addict, you've been told your entire life that it is because you lack self-control—maybe even that you're a bad person. The idea that a little bit of discipline would solve all our problems is deeply embedded in our culture.

Recent research, however, shows something different. When scientists analyze people who appear to have tremendous self-control, it turns out those individuals aren't all that different from those who are struggling. Instead, "disciplined" people are better at structuring their lives in a way that *does not require* heroic willpower and self-control. In other words, they spend less time in tempting situations.

The people with the best self-control are typically the ones who need to use it the least. It's easier to practice self-restraint when you don't have to use it very often. So, yes, perseverance, grit, and willpower are essential to success, but the way to improve these qualities is not by wishing you were a more disciplined person, but by creating a more disciplined environment.

This counterintuitive idea makes even more sense once you understand what happens when a habit is formed in the brain. A habit that has been encoded in the mind is ready to be used whenever the relevant situation arises. When Patty Olwell, a therapist from Austin, Texas, started smoking, she would often light up while riding horses with a friend. Eventually, she quit smoking and avoided it for years. She had also stopped riding. Decades later, she hopped on a horse

again and found herself craving a cigarette for the first time in forever. The cues were still internalized; she just hadn't been exposed to them in a long time.

Once a habit has been encoded, the urge to act follows whenever the environmental cues reappear. This is one reason behavior change techniques can backfire. Shaming obese people with weight-loss presentations can make them feel stressed, and as a result many people return to their favorite coping strategy: overeating. Showing pictures of blackened lungs to smokers leads to higher levels of anxiety, which drives many people to reach for a cigarette. If you're not careful about cues, you can cause the very behavior you want to stop.

Bad habits are autocatalytic: the process feeds itself. They foster the feelings they try to numb. You feel bad, so you eat junk food. Because you eat junk food, you feel bad. Watching television makes you feel sluggish, so you watch more television because you don't have the energy to do anything else. Worrying about your health makes you feel anxious, which causes you to smoke to ease your anxiety, which makes your health even worse and soon you're feeling more anxious. It's a downward spiral, a runaway train of bad habits.

Researchers refer to this phenomenon as "cue-induced wanting": an external trigger causes a compulsive craving to repeat a bad habit. Once you *notice* something, you begin to *want* it. This process is happening all the time—often without us realizing it. Scientists have found that showing addicts a picture of cocaine for just thirty-three milliseconds stimulates the reward pathway in the brain and sparks desire. This speed is too fast for the brain to consciously register—the addicts couldn't even tell you what they had seen—but they craved the drug all the same.

Here's the punch line: You can break a habit, but you're unlikely to forget it. Once the mental grooves of habit have been carved into your brain, they are nearly impossible to remove entirely—even if they go unused for quite a while. And that means that simply resisting temptation is an ineffective strategy. It is hard to maintain a Zen attitude in a life filled with interruptions. It takes too much energy. In the short-run, you can choose to overpower temptation. In the long-run, we become a product of the environment that we live in. To put it bluntly, I have never seen someone consistently stick to positive habits in a negative environment.

A more reliable approach is to cut bad habits off at the source. One of the most practical ways to eliminate a bad habit is to reduce exposure to the cue that causes it.

- If you can't seem to get any work done, leave your phone in another room for a few hours.
- If you're continually feeling like you're not enough, stop following social media accounts that trigger jealousy and envy.
- If you're wasting too much time watching television, move the TV out of the bedroom.
- If you're spending too much money on electronics, quit reading reviews of the latest tech gear.
- If you're playing too many video games, unplug the console and put it in a closet after each use.

This practice is an inversion of the 1st Law of Behavior Change. Rather than *make it obvious*, you can *make it invisible*. I'm often surprised by how effective simple changes like these can be. Remove a single cue and the entire habit often fades away.

Self-control is a short-term strategy, not a long-term one. You may be able to resist temptation once or twice, but it's unlikely you can muster the willpower to override your desires every time. Instead of summoning a new dose of willpower whenever you want to do the right thing, your energy would be better spent optimizing your environment. This is the secret to self-control. Make the cues of your good habits obvious and the cues of your bad habits invisible.

Chapter Summary

- The inversion of the 1st Law of Behavior Change is *make it invisible*.
- Once a habit is formed, it is unlikely to be forgotten.
- People with high self-control tend to spend less time in tempting situations. It's easier to avoid temptation than resist it.
- One of the most practical ways to eliminate a bad habit is to reduce exposure to the cue that causes it.
- Self-control is a short-term strategy, not a long-term one.

HOW TO CREATE A GOOD HABIT

The 1st Law: Make It Obvious
1.1: Fill out the Habits Scorecard. Write down your current habits to become aware of them.
1.2: Use implementation intentions**:** "I will [BEHAVIOR] at [TIME] in [LOCATION]."
1.3: Use habit stacking**:** "After [CURRENT HABIT], I will [NEW HABIT]."
1.4: Design your environment. Make the cues of good habits obvious and visible.
The 2nd Law: Make It Attractive
The 3rd Law: Make It Easy
The 4th Law: Make It Satisfying

HOW TO BREAK A BAD HABIT

Inversion of the 1st Law: Make It Invisible
1.5: Reduce exposure. Remove the cues of your bad habits from your environment.
Inversion of the 2nd Law: Make It Unattractive
Inversion of the 3rd Law: Make It Difficult
Inversion of the 4th Law: Make It Unsatisfying

You can download a printable version of this habits cheat sheet at:
atomichabits.com/cheatsheet

THE 2ND LAW

Make It Attractive

8

How to Make a Habit Irresistible

IN THE 1940S, a Dutch scientist named Niko Tinbergen performed a series of experiments that transformed our understanding of what motivates us. Tinbergen—who eventually won a Nobel Prize for his work—was investigating herring gulls, the gray and white birds often seen flying along the seashores of North America.

Adult herring gulls have a small red dot on their beak, and Tinbergen noticed that newly hatched chicks would peck this spot whenever they wanted food. To begin one experiment, he created a collection of fake cardboard beaks, just a head without a body. When the parents had flown away, he went over to the nest and offered these dummy beaks to the chicks. The beaks were obvious fakes, and he assumed the baby birds would reject them altogether.

However, when the tiny gulls saw the red spot on the cardboard beak, they pecked away just as if it were attached to their own mother. They had a clear preference for those red spots—as if they had been genetically programmed at birth. Soon Tinbergen discovered that the bigger the red spot, the faster the chicks pecked. Eventually, he created a beak with three large red dots on it. When he placed it over the nest, the baby birds went crazy with delight. They pecked at the little red patches as if it was the greatest beak they had ever seen.

Tinbergen and his colleagues discovered similar behavior in other animals. For example, the greylag goose is a ground-nesting bird. Occasionally, as the mother moves around on the nest, one of the eggs will roll out and settle on the grass nearby. Whenever this happens, the goose will waddle over to the egg and use its beak and neck to pull it back into the nest.

Tinbergen discovered that the goose will pull *any* nearby round object, such as a billiard ball or a lightbulb, back into the nest. The bigger the object, the greater their response. One goose even made a tremendous effort to roll a volleyball back and sit on top. Like the baby gulls automatically pecking at red dots, the greylag goose was following an instinctive rule: *When I see a round object nearby, I must roll it back into the nest. The bigger the round object, the harder I should try to get it.*

It's like the brain of each animal is preloaded with certain rules for behavior, and when it comes across an exaggerated version of that rule, it lights up like a Christmas tree. Scientists refer to these exaggerated cues as *supernormal stimuli*. A supernormal stimulus is a heightened version of reality—like a beak with three red dots or an egg the size of a volleyball—and it elicits a stronger response than usual.

Humans are also prone to fall for exaggerated versions of reality. Junk food, for example, drives our reward systems into a frenzy. After spending hundreds of thousands of years hunting and foraging for food in the wild, the human brain has evolved to place a high value on salt, sugar, and fat. Such foods are often calorie-dense and they were quite rare when our ancient ancestors were roaming the savannah. When you don't know where your next meal is coming from, eating as much as possible is an excellent strategy for survival.

Today, however, we live in a calorie-rich environment. Food is abundant, but your brain continues to crave it like it is scarce. Placing a high value on salt, sugar, and fat is no longer advantageous to our health, but the craving persists because the brain's reward centers have not changed for approximately fifty thousand years. The modern food industry relies on stretching our Paleolithic instincts beyond their evolutionary purpose.

A primary goal of food science is to create products that are more attractive to consumers. Nearly every food in a bag, box, or jar has been enhanced in some way, if only with additional flavoring. Companies spend millions of dollars to discover the most satisfying level of crunch in a potato chip or the perfect amount of fizz in a soda. Entire departments are dedicated to optimizing how a product feels in your mouth—a quality known as *orosensation*. French fries, for example, are a potent combination—golden brown and crunchy on the outside, light and smooth on the inside.

Other processed foods enhance *dynamic contrast*, which refers to items with a combination of sensations, like crunchy and creamy. Imagine the gooeyness of melted cheese on top of a crispy pizza crust, or the crunch of an Oreo cookie combined with its smooth center. With natural, unprocessed foods, you tend to experience the same sensations over and over—*how's that seventeenth bite of kale taste?* After a few minutes, your brain loses interest and you begin to feel full. But foods that are high in dynamic contrast keep the experience novel and interesting, encouraging you to eat more.

Ultimately, such strategies enable food scientists to find the "bliss point" for each product—the precise combination of salt, sugar, and fat that excites your brain and keeps you coming back for more. The result, of course, is that you overeat because hyperpalatable foods are more attractive to the human brain. As Stephan Guyenet, a neuroscientist who specializes in eating behavior and obesity, says, "We've gotten too good at pushing our own buttons."

The modern food industry, and the overeating habits it has spawned, is just one example of the 2nd Law of Behavior Change: *Make it attractive*. The more attractive an opportunity is, the more likely it is to become habit-forming.

Look around. Society is filled with highly engineered versions of reality that are more attractive than the world our ancestors evolved in. Stores feature mannequins with exaggerated hips and breasts to sell clothes. Social media delivers more "likes" and praise in a few minutes than we could ever get in the office or at home. Online porn splices together stimulating scenes at a rate that would be impossible to replicate in real life. Advertisements are created with a combination of ideal lighting, professional makeup, and Photoshopped edits—even the model doesn't look like the person in the final image. These are the supernormal stimuli of our modern world. They exaggerate features that are naturally attractive to us, and our instincts go wild as a result, driving us into excessive shopping habits, social media habits, porn habits, eating habits, and many others.

If history serves as a guide, the opportunities of the future will be more attractive than those of today. The trend is for rewards to become more concentrated and stimuli to become more enticing. Junk food is a more concentrated form of calories than natural foods. Hard liquor is a more concentrated form of alcohol than beer. Video games are a more

concentrated form of play than board games. Compared to nature, these pleasure-packed experiences are hard to resist. We have the brains of our ancestors but temptations they never had to face.

If you want to increase the odds that a behavior will occur, then you need to make it attractive. Throughout our discussion of the 2nd Law, our goal is to learn how to make our habits irresistible. While it is not possible to transform every habit into a supernormal stimulus, we can make any habit more enticing. To do this, we must start by understanding what a craving is and how it works.

We begin by examining a biological signature that all habits share—the dopamine spike.

THE DOPAMINE-DRIVEN FEEDBACK LOOP

Scientists can track the precise moment a craving occurs by measuring a neurotransmitter called dopamine.* The importance of dopamine became apparent in 1954 when the neuroscientists James Olds and Peter Milner ran an experiment that revealed the neurological processes behind craving and desire. By implanting electrodes in the brains of rats, the researchers blocked the release of dopamine. To the surprise of the scientists, the rats lost all will to live. They wouldn't eat. They wouldn't have sex. They didn't crave anything. Within a few days, the animals died of thirst.

In follow-up studies, other scientists also inhibited the dopamine-releasing parts of the brain, but this time, they squirted little droplets of sugar into the mouths of the dopamine-depleted rats. Their little rat faces lit up with pleasurable grins from the tasty substance. Even though dopamine was blocked, they *liked* the sugar just as much as before; they just didn't *want* it anymore. The ability to experience pleasure remained, but without dopamine, desire died. And without desire, action stopped.

When other researchers reversed this process and flooded the reward system of the brain with dopamine, animals performed habits at breakneck speed. In one study, mice received a powerful hit of dopamine each time they poked their nose in a box. Within minutes, the mice developed a craving so strong they began poking their nose into the box eight hundred times per hour. (Humans are not so

different: the average slot machine player will spin the wheel six hundred times per hour.)

Habits are a dopamine-driven feedback loop. Every behavior that is highly habit-forming—taking drugs, eating junk food, playing video games, browsing social media—is associated with higher levels of dopamine. The same can be said for our most basic habitual behaviors like eating food, drinking water, having sex, and interacting socially.

For years, scientists assumed dopamine was all about pleasure, but now we know it plays a central role in many neurological processes, including motivation, learning and memory, punishment and aversion, and voluntary movement.

When it comes to habits, the key takeaway is this: dopamine is released not only when you *experience* pleasure, but also when you *anticipate* it. Gambling addicts have a dopamine spike right *before* they place a bet, not after they win. Cocaine addicts get a surge of dopamine when they *see* the powder, not after they take it. Whenever you predict that an opportunity will be rewarding, your levels of dopamine spike in anticipation. And whenever dopamine rises, so does your motivation to act.

It is the anticipation of a reward—not the fulfillment of it—that gets us to take action.

Interestingly, the reward system that is activated in the brain when you *receive* a reward is the same system that is activated when you *anticipate* a reward. This is one reason the anticipation of an experience can often feel better than the attainment of it. As a child, thinking about Christmas morning can be better than opening the gifts. As an adult, daydreaming about an upcoming vacation can be more enjoyable than actually being on vacation. Scientists refer to this as the difference between “wanting” and “liking.”

THE DOPAMINE SPIKE

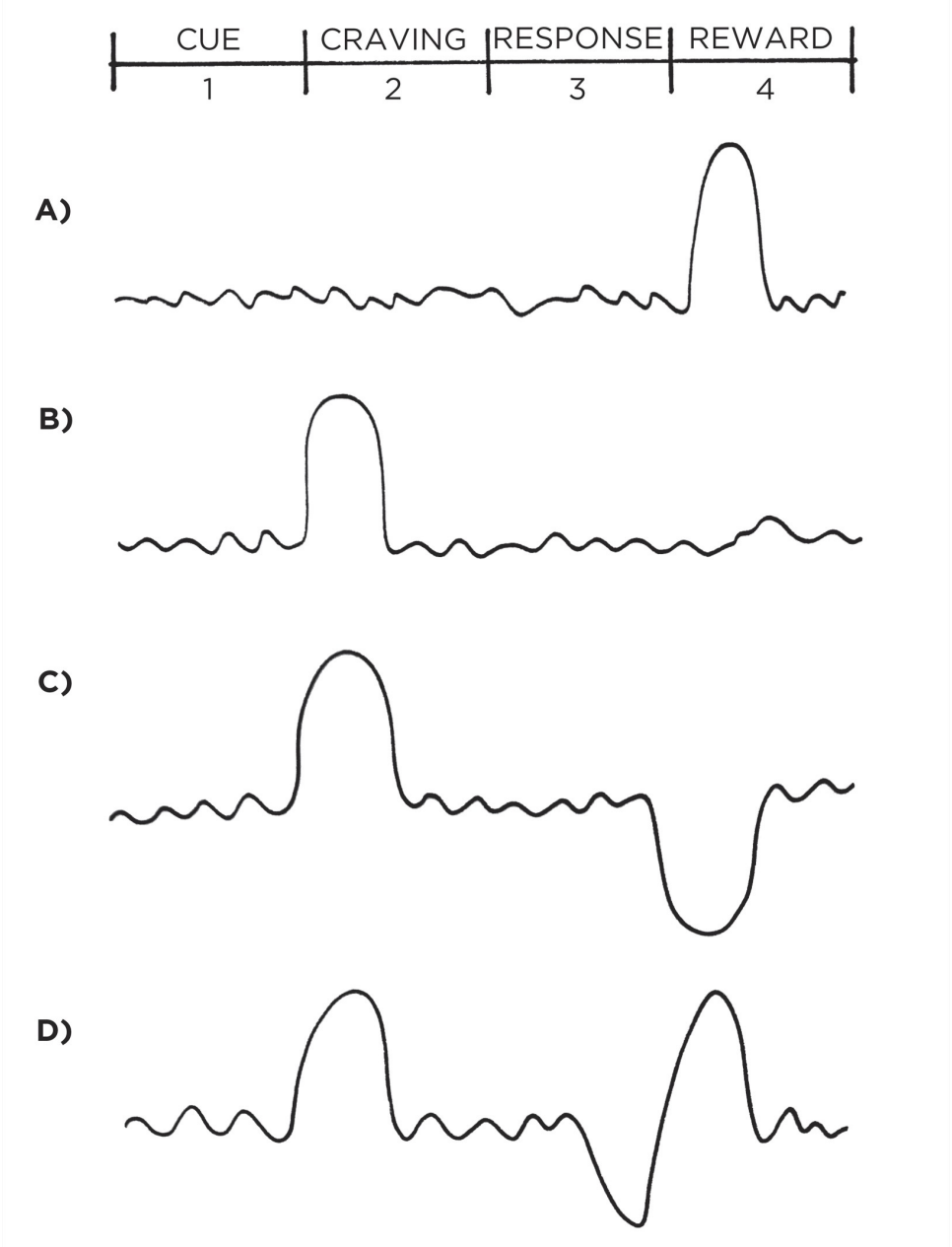

FIGURE 9: Before a habit is learned (A), dopamine is released when the reward is experienced for the first time. The next time around (B), dopamine rises *before* taking action, immediately after a cue is recognized. This spike leads to a feeling of desire and a craving to take action whenever the cue is spotted. Once a habit is learned, dopamine will not rise when a reward is experienced because you already expect the reward. However, if you see a cue and expect a reward, but do not get one, then dopamine will drop in disappointment (C). The sensitivity of the dopamine response can clearly be seen when a reward is provided late (D). First, the cue is identified and dopamine rises as a craving builds. Next, a response is taken but the reward does not come as quickly as expected and dopamine begins to drop. Finally, when the reward comes a little later than you had hoped, dopamine spikes again. It is as if the brain is saying, “See! I knew I was right. Don’t forget to repeat this action next time.”

Your brain has far more neural circuitry allocated for *wanting* rewards than for *liking* them. The wanting centers in the brain are large: the brain stem, the nucleus accumbens, the ventral tegmental area, the dorsal striatum, the amygdala, and portions of the prefrontal cortex. By comparison, the liking centers of the brain are much smaller. They are often referred to as "hedonic hot spots" and are distributed like tiny islands throughout the brain. For instance, researchers have found that 100 percent of the nucleus accumbens is activated during wanting. Meanwhile, only 10 percent of the structure is activated during liking.

The fact that the brain allocates so much precious space to the regions responsible for craving and desire provides further evidence of the crucial role these processes play. Desire is the engine that drives behavior. Every action is taken because of the anticipation that precedes it. It is the craving that leads to the response.

These insights reveal the importance of the 2nd Law of Behavior Change. We need to make our habits attractive because it is the expectation of a rewarding experience that motivates us to act in the first place. This is where a strategy known as temptation bundling comes into play.

HOW TO USE TEMPTATION BUNDLING TO MAKE YOUR HABITS MORE ATTRACTIVE

Ronan Byrne, an electrical engineering student in Dublin, Ireland, enjoyed watching Netflix, but he also knew that he should exercise more often than he did. Putting his engineering skills to use, Byrne hacked his stationary bike and connected it to his laptop and television. Then he wrote a computer program that would allow Netflix to run *only* if he was cycling at a certain speed. If he slowed down for too long, whatever show he was watching would pause until he started pedaling again. He was, in the words of one fan, "eliminating obesity one Netflix binge at a time."

He was also employing temptation bundling to make his exercise habit more attractive. Temptation bundling works by linking an action you want to do with an action you need to do. In Byrne's case, he bundled watching Netflix (the thing he wanted to do) with riding his stationary bike (the thing he needed to do).

Businesses are masters at temptation bundling. For instance, when the American Broadcasting Company, more commonly known as ABC, launched its Thursday-night television lineup for the 2014–2015 season, they promoted temptation bundling on a massive scale.

Every Thursday, the company would air three shows created by screenwriter Shonda Rhimes—*Grey's Anatomy*, *Scandal*, and *How to Get Away with Murder*. They branded it as "TGIT on ABC" (TGIT stands for Thank God It's Thursday). In addition to promoting the shows, ABC encouraged viewers to make popcorn, drink red wine, and enjoy the evening.

Andrew Kubitz, head of scheduling for ABC, described the idea behind the campaign: "We see Thursday night as a viewership opportunity, with either couples or women by themselves who want to sit down and escape and have fun and drink their red wine and have some popcorn." The brilliance of this strategy is that ABC was associating the thing they *needed* viewers to do (watch their shows) with activities their viewers already *wanted* to do (relax, drink wine, and eat popcorn).

Over time, people began to connect watching ABC with feeling relaxed and entertained. If you drink red wine and eat popcorn at 8 p.m. every Thursday, then eventually "8 p.m. on Thursday" *means* relaxation and entertainment. The reward gets associated with the cue, and the habit of turning on the television becomes more attractive.

You're more likely to find a behavior attractive if you get to do one of your favorite things at the same time. Perhaps you want to hear about the latest celebrity gossip, but you need to get in shape. Using temptation bundling, you could only read the tabloids and watch reality shows at the gym. Maybe you want to get a pedicure, but you need to clean out your email inbox. Solution: only get a pedicure while processing overdue work emails.

Temptation bundling is one way to apply a psychology theory known as Premack's Principle. Named after the work of professor David Premack, the principle states that "more probable behaviors will reinforce less probable behaviors." In other words, even if you don't really want to process overdue work emails, you'll become conditioned to do it if it means you get to do something you really want to do along the way.

You can even combine temptation bundling with the habit stacking strategy we discussed in Chapter 5 to create a set of rules to guide your behavior.

The habit stacking + temptation bundling formula is:

1. After [CURRENT HABIT], I will [HABIT I NEED].
2. After [HABIT I NEED], I will [HABIT I WANT].

If you want to read the news, but you need to express more gratitude:

1. After I get my morning coffee, I will say one thing I'm grateful for that happened yesterday (need).
2. After I say one thing I'm grateful for, I will read the news (want).

If you want to watch sports, but you need to make sales calls:

1. After I get back from my lunch break, I will call three potential clients (need).
2. After I call three potential clients, I will check ESPN (want).

If you want to check Facebook, but you need to exercise more:

1. After I pull out my phone, I will do ten burpees (need).
2. After I do ten burpees, I will check Facebook (want).

The hope is that eventually you'll look forward to calling three clients or doing ten burpees because it means you get to read the latest sports news or check Facebook. Doing the thing you need to do means you get to do the thing you want to do.

We began this chapter by discussing supernormal stimuli, which are heightened versions of reality that increase our desire to take action. Temptation bundling is one way to create a heightened version of any habit by connecting it with something you already want. Engineering a truly irresistible habit is a hard task, but this simple strategy can be

employed to make nearly any habit more attractive than it would be otherwise.

Chapter Summary

- The 2nd Law of Behavior Change is *make it attractive*.
- The more attractive an opportunity is, the more likely it is to become habit-forming.
- Habits are a dopamine-driven feedback loop. When dopamine rises, so does our motivation to act.
- It is the anticipation of a reward—not the fulfillment of it—that gets us to take action. The greater the anticipation, the greater the dopamine spike.
- Temptation bundling is one way to make your habits more attractive. The strategy is to pair an action you *want* to do with an action you *need* to do.

9

The Role of Family and Friends in Shaping Your Habits

IN 1965, a Hungarian man named Laszlo Polgar wrote a series of strange letters to a woman named Klara.

Laszlo was a firm believer in hard work. In fact, it was all he believed in: he completely rejected the idea of innate talent. He claimed that with deliberate practice and the development of good habits, a child could become a genius in any field. His mantra was "A genius is not born, but is educated and trained."

Laszlo believed in this idea so strongly that he wanted to test it with his own children—and he was writing to Klara because he "needed a wife willing to jump on board." Klara was a teacher and, although she may not have been as adamant as Laszlo, she also believed that with proper instruction, anyone could advance their skills.

Laszlo decided chess would be a suitable field for the experiment, and he laid out a plan to raise his children to become chess prodigies. The kids would be home-schooled, a rarity in Hungary at the time. The house would be filled with chess books and pictures of famous chess players. The children would play against each other constantly and compete in the best tournaments they could find. The family would keep a meticulous file system of the tournament history of every competitor the children faced. Their lives would be dedicated to chess.

Laszlo successfully courted Klara, and within a few years, the Polgars were parents to three young girls: Susan, Sofia, and Judit.

Susan, the oldest, began playing chess when she was four years old. Within six months, she was defeating adults.

Sofia, the middle child, did even better. By fourteen, she was a world champion, and a few years later, she became a grandmaster.

Judit, the youngest, was the best of all. By age five, she could beat her father. At twelve, she was the youngest player ever listed among the top one hundred chess players in the world. At fifteen years and four months old, she became the youngest grandmaster of all time—younger than Bobby Fischer, the previous record holder. For twenty-seven years, she was the number-one-ranked female chess player in the world.

The childhood of the Polgar sisters was atypical, to say the least. And yet, if you ask them about it, they claim their lifestyle was attractive, even enjoyable. In interviews, the sisters talk about their childhood as entertaining rather than grueling. They loved playing chess. They couldn't get enough of it. Once, Laszlo reportedly found Sofia playing chess in the bathroom in the middle of the night. Encouraging her to go back to sleep, he said, "Sofia, leave the pieces alone!" To which she replied, "Daddy, *they* won't leave *me* alone!"

The Polgar sisters grew up in a culture that prioritized chess above all else—praised them for it, rewarded them for it. In their world, an obsession with chess was normal. And as we are about to see, whatever habits are normal in your culture are among the most attractive behaviors you'll find.

THE SEDUCTIVE PULL OF SOCIAL NORMS

Humans are herd animals. We want to fit in, to bond with others, and to earn the respect and approval of our peers. Such inclinations are essential to our survival. For most of our evolutionary history, our ancestors lived in tribes. Becoming separated from the tribe—or worse, being cast out—was a death sentence. "The lone wolf dies, but the pack survives."*

Meanwhile, those who collaborated and bonded with others enjoyed increased safety, mating opportunities, and access to resources. As Charles Darwin noted, "In the long history of humankind, those who learned to collaborate and improvise most effectively have prevailed." As a result, one of the deepest human desires is to belong. And this ancient preference exerts a powerful influence on our modern behavior.

We don't choose our earliest habits, we imitate them. We follow the script handed down by our friends and family, our church or school, our local community and society at large. Each of these cultures and groups comes with its own set of expectations and standards—when and whether to get married, how many children to have, which holidays to celebrate, how much money to spend on your child's birthday party. In many ways, these social norms are the invisible rules that guide your behavior each day. You're always keeping them in mind, even if they are at the not top of your mind. Often, you follow the habits of your culture without thinking, without questioning, and sometimes without remembering. As the French philosopher Michel de Montaigne wrote, "The customs and practices of life in society sweep us along."

Most of the time, going along with the group does not feel like a burden. Everyone wants to belong. If you grow up in a family that rewards you for your chess skills, playing chess will seem like a very attractive thing to do. If you work in a job where everyone wears expensive suits, then you'll be inclined to splurge on one as well. If all of your friends are sharing an inside joke or using a new phrase, you'll want to do it, too, so they know that you "get it." Behaviors are attractive when they help us fit in.

We imitate the habits of three groups in particular:

1. The close.
2. The many.
3. The powerful.

Each group offers an opportunity to leverage the 2nd Law of Behavior Change and make our habits more attractive.

1. Imitating the Close

Proximity has a powerful effect on our behavior. This is true of the physical environment, as we discussed in Chapter 6, but it is also true of the social environment.

We pick up habits from the people around us. We copy the way our parents handle arguments, the way our peers flirt with one another,

the way our coworkers get results. When your friends smoke pot, you give it a try, too. When your wife has a habit of double-checking that the door is locked before going to bed, you pick it up as well.

I find that I often imitate the behavior of those around me without realizing it. In conversation, I'll automatically assume the body posture of the other person. In college, I began to talk like my roommates. When traveling to other countries, I unconsciously imitate the local accent despite reminding myself to stop.

As a general rule, the closer we are to someone, the more likely we are to imitate some of their habits. One groundbreaking study tracked twelve thousand people for thirty-two years and found that "a person's chances of becoming obese increased by 57 percent if he or she had a friend who became obese." It works the other way, too. Another study found that if one person in a relationship lost weight, the other partner would also slim down about one third of the time. Our friends and family provide a sort of invisible peer pressure that pulls us in their direction.

Of course, peer pressure is bad only if you're surrounded by bad influences. When astronaut Mike Massimino was a graduate student at MIT, he took a small robotics class. Of the ten people in the class, *four* became astronauts. If your goal was to make it into space, then that room was about the best culture you could ask for. Similarly, one study found that the higher your best friend's IQ at age eleven or twelve, the higher your IQ would be at age fifteen, even after controlling for natural levels of intelligence. We soak up the qualities and practices of those around us.

One of the most effective things you can do to build better habits is to join a culture where your desired behavior is the normal behavior. New habits seem achievable when you see others doing them every day. If you are surrounded by fit people, you're more likely to consider working out to be a common habit. If you're surrounded by jazz lovers, you're more likely to believe it's reasonable to play jazz every day. Your culture sets your expectation for what is "normal." Surround yourself with people who have the habits you want to have yourself. You'll rise together.

To make your habits even more attractive, you can take this strategy one step further.