

By the author of the *New York Times* bestseller

***The Power of Habit***

# Smarter Faster Better



**Charles Duhigg**

## II.

In the past two decades the amount of information embedded in our daily lives has skyrocketed. There are smartphones that count our steps, websites that track our spending, digital maps to plot our commutes, software that watches our Web browsing, and apps to manage our schedules. We can precisely measure how many calories we eat each day, how much our cholesterol scores have improved each month, how many dollars we spent at restaurants, and how many minutes were allocated to the gym. This information can be incredibly powerful. If harnessed correctly, data can make our days more productive, our diets healthier, our schools more effective, and our lives less stressful.

Unfortunately, however, our ability to learn from information hasn't necessarily kept pace with its proliferation. Though we can track our spending and cholesterol, we still often eat and spend in ways we know we should avoid. Even simple uses of information—such as choosing a restaurant or a new credit card—haven't necessarily become more simple. To find a good Chinese restaurant, is it better to consult Google, ask your Facebook feed, call up a friend, or search your browser history to see where you ordered from last time? To figure out which credit card to sign up for, should you consult an online guide? Call your bank? Open those envelopes piling up on the dining room table?

In theory, the ongoing explosion in information should make the right answers more obvious. In practice, though, being surrounded by data often makes it harder to decide.

This inability to take advantage of data as it becomes more plentiful is called “information blindness.” Just as snow blindness refers to people losing the capacity to distinguish trees from hills under a blanket of powder, so information blindness refers to our mind’s tendency to stop absorbing data when there’s too much to take in.

One study of information blindness was published in 2004 when a group of researchers at Columbia University tried to figure out why some people sign up for 401(k) retirement plans while others don’t. They studied almost eight hundred thousand people, across hundreds of companies, who were offered opportunities to enroll in 401(k) plans. For many workers, signing up for the retirement plans should have been an easy choice: The 401(k)s offered large tax savings and many of the companies in the study promised to match employees’ contributions—in effect giving them free money. And at firms where workers were offered information on two 401(k) options, 75 percent enrolled. Employees at those companies told researchers that signing up seemed obvious. They looked at the two brochures, picked the plan that seemed most sensible, and then watched their retirement accounts grow fatter over time.

At other companies, even as the number of plans to choose among increased, sign-ups remained high. When workers were offered twenty-five different kinds of plans, 72 percent of them enrolled.

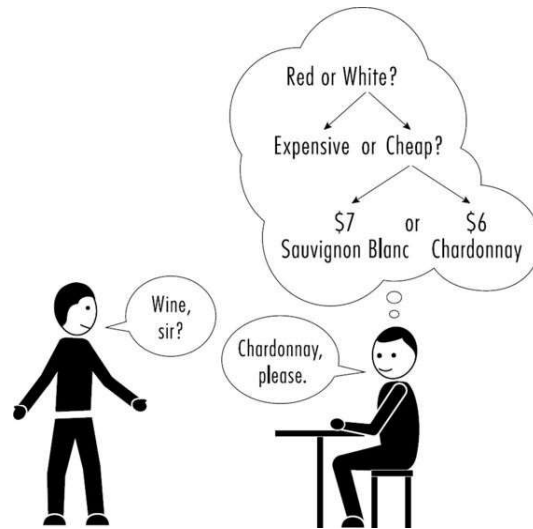
But when employees received information on more than thirty plans, something seemed to change. The amount of information people were receiving became so overwhelming that workers stopped making good choices—or, in some cases, any choice at all. At thirty-nine plans, only 65 percent of

people signed up for 401(k) accounts. At sixty plans, participation dropped to 53 percent. “Every ten funds added was associated with 1.5 percent to 2 percent drop in participation,” the researchers wrote in their 2004 study. Signing up for a 401(k) was still the right decision. But when information became too plentiful, people put the brochures in a drawer and never looked at them again.

“We’ve found this in dozens of settings,” said Martin Eppler, a professor at the University of St. Gallen in Switzerland who studies information overload. “The quality of people’s decisions generally gets better as they receive more relevant information. But then their brain reaches a breaking point when the data becomes too much. They start ignoring options or making bad choices or stop interacting with the information completely.”

Information blindness occurs because of the way our brain’s capacity for learning has evolved. Humans are exceptionally good at absorbing information—as long as we can break data into a series of smaller and smaller pieces. This process is known as “winnowing” or “scaffolding.” Mental scaffolds are like file cabinets filled with folders that help us store and access information when the need arises. If someone is handed a huge wine list at a restaurant, for instance, they’ll typically have no problem making a selection because their brain will automatically place what they know about wine into a scaffold of categories they can use to make binary decisions (Do I want a white or a red? White!), and then finer subcategories (Expensive or cheap? Cheap!) until they confront a final comparison (The six-dollar Chardonnay or the seven-dollar Sauvignon Blanc?) that draws upon what they have already learned about themselves (I like Chardonnay!). We

do this so quickly that, most of the time, we're hardly aware it's occurring.



“Our brains crave reducing things to two or three options,” said Eric Johnson, a cognitive psychologist at Columbia University who studies decision making. “So when we’re faced with a lot of information, we start automatically arranging it into mental folders and subfolders and sub-subfolders.”

This ability to digest large amounts of information by breaking it into smaller pieces is how our brains turn information into knowledge. We learn which facts or lessons to apply in a given situation by learning which folders to consult. Experts are distinguished from novices, in part, by how many folders they carry in their heads. An oenophile will look at a wine list and immediately rely on a vast system of folders—such as vintage and region—that don’t occur to novices. The oenophile has learned how to organize information (Choose the year first, then look at the pricing) in ways that make it less overwhelming. So while a novice is flipping through pages, the expert is already ignoring whole sections of the wine list.

So when we are presented with information on sixty different 401(k) plans and no obvious way to start analyzing

them, our brains pivot to a more binary decision: Do I try to make sense of all this information, or just stick everything in my drawer and ignore it?

One way to overcome information blindness is to force ourselves to grapple with the data in front of us, to manipulate information by transforming it into a sequence of questions to be answered or choices to be made. This is sometimes referred to as “creating disfluency” because it relies on doing a little bit of work: Instead of simply choosing the house wine, you have to ask yourself a series of questions (White or red? Expensive or cheap?). Instead of sticking all the 401(k) brochures into a drawer, you have to contrast the plans’ various benefits and make a choice. It might seem like a small effort at the time, but those tiny bits of labor are critical to avoiding information blindness. The process of creating disfluency can be as minor as forcing ourselves to compare a few pages on a menu, or as big as building a spreadsheet to calculate 401(k) payouts. But regardless of the intensity of the effort, the underlying cognitive activity is the same: We are taking a mass of information and forcing it through a procedure that makes it easier to digest.

“The important step seems to be performing some kind of operation,” said Adam Alter, a professor at NYU who has studied disfluency. “If you make people use a new word in a sentence, they’ll remember it longer. If you make them write down a sentence with the word, they’ll start using it in conversations.” When Alter conducts experiments, he sometimes gives people instructions in a hard-to-read font because, as they struggle to make out the words, they read the text more carefully. “The initial difficulty in processing the text leads you to think more deeply about what you’re reading,

so you spend more time and energy making sense of it,” he said. When you ask yourself a few questions about wine, or compare the fees on various 401(k) plans, the data becomes less monolithic and more like a series of decisions. When information is made disfluent, we learn more.



In 1997, executives running the debt collection division of Chase Manhattan Bank began wondering why a particular group of employees in Tampa, Florida, were so much more successful than their peers at convincing people to pay their credit card bills. Chase, at the time, was one of the largest credit card issuers in the nation. As a result, it was also one of the largest debt collectors. It employed thousands of people, in offices all over the country, who sat in cubicles all day and called debtor after debtor, to harass them about overdue credit card bills.

Chase knew from internal surveys that debt collectors didn't especially like their jobs, and executives had grown accustomed to lackluster performance. The company had tried to make the work easier by giving collectors tools to help them convince debtors to pay. As each call occurred, for instance, the computer in front of the debt collector served up information that would assist in tailoring their pitch: It told them the debtor's age, how frequently he or she had paid off their balances, how many other credit cards they owned, what conversational tactics had proven successful in the past. Employees were sent to training sessions and given daily memos with charts and graphs showing the success of various collection tactics.

But almost none of the employees, Chase found, paid much



attention to the information they received. No matter how many classes Chase provided or memos they sent, collection rates never seemed to improve much. So executives were pleasantly surprised when one team in Tampa started collecting larger-than-usual amounts.

That group was overseen by a manager named Charlotte Fludd, an evangelical minister in training with a passion for long skirts and Hooters chicken wings, who had started out as a debt collector herself and had worked her way through the ranks until she was overseeing a group responsible for some of the hardest accounts, debtors who were 120 to 150 days overdue. Cardholders that far in arrears almost never paid off their balances. However, Fludd's group was collecting \$1 million more per month than any other collection team, even as they were going after some of the most reticent debtors. What's more, Fludd's group reported some of Chase's highest employee satisfaction scores. Even the debtors they collected from, in follow-up surveys, said they had appreciated how they had been treated.

Chase's executives hoped Fludd might share her tactics with other managers, and so they asked her to speak at the company's regional meeting at the Innisbrook Resort near Tampa. The title of her talk was "Optimizing the Mosaix/Voicelink Autodialer System." The room was packed.

"Can you tell us how you schedule your autodialer?" one manager asked.

"Carefully," Fludd said. From 9:15 A.M. to 11:50 A.M., she explained, the collectors called people's home numbers because they were more likely to reach a wife taking care of the kids. Women were more likely to send in a check, Fludd said.



“Then, from noon to one thirty, we call debtors’ work numbers,” Fludd explained, “and we get a lot more men, but you can start the conversation by saying, ‘Oh, I’m so glad I caught you on your way to lunch,’ like he’s real important and his schedule is busy, because that way, he’ll want to live up to your expectations and he’ll promise to pay.

“Then at dinnertime, we call people we think are unmarried because they’re more likely to be lonely and will want to talk, and then right after dinner, we call people whose balances have ballooned up and down, because if they’ve already had a glass of wine and they’re relaxed, we can remind them how good it feels to start paying the card off.”

Fludd had dozens of tips like these. She had advice on when to use a comforting tone (if you hear soap operas in the background), when collectors should reveal personal details (if the debtor mentions kids), and when to deploy a stern approach (to anyone invoking religion).

The other managers didn’t know what to make of these suggestions. All of them sounded perfectly logical—but they didn’t think their employees would be able to use any of them. The average debt collector had just a high school diploma. For many collectors, this was their first full-time job. Managers mostly spent their time reminding employees to avoid sounding so wooden on the phone. Their debt collectors weren’t going to be able to pay attention to what television shows were playing in the background or listen for religious references. No one was adept enough at analyzing debtors’ records to figure out how to reach a housewife versus her husband. They just talked to whoever picked up the phone. Chase might send the collectors memos each morning, the company might give them computer screens of information

and provide them with classes—but managers knew almost no one actually read those memos or looked at the screens or used what they learned in class. Simply having a phone conversation with a stranger about a sensitive issue like an overdue bill was overwhelming enough on its own. The average collector couldn't process additional information while conducting a call.

But when Fludd was asked why her employees were so effective at processing more information than the average collector, she didn't have any great answers. She couldn't explain why her workers seemed to absorb so much more. So after the conference, Chase hired the consulting firm Mitchell Madison Group to examine her methods.

"How did you figure out that it's better to call women in the morning?" a consultant named Traci Entel asked her when Fludd was back in the office.

"Do you want me to show you my calendar?" said Fludd. The consultants weren't certain why she needed a calendar to explain her methods, but sure, they said, let's see the calendar. They expected Fludd to pull out a datebook or journal. Instead, she dropped a binder onto the table. Then she wheeled over a cart containing several more binders just like it.

"Okay," Fludd said, leafing through pages filled with numbers and scribbled notes. She found the sheet she was looking for. "One day, I came up with this idea that it would be easier to collect from younger people, because I figured they're more eager to keep a good credit score," she said.

Fludd explained that coming up with such theories was common on her team. Employees would gather during lunch breaks or after work to kick around ideas. Typically, these ideas didn't make much sense—at least, at first. In fact, the

ideas were often somewhat nonsensical, such as the suggestion that an irresponsible young person who is already behind on her debts, for some reason, would suddenly care deeply about improving her credit score. But that was okay. The point wasn't to suggest a good idea. It was to generate an idea, any idea at all, and then test it.

Fludd looked at her calendar. "So the next day, we started calling people between the ages of twenty-one and thirty-seven." At the end of the shift, employees reported no noticeable change in how much they had convinced people to pay. So the following morning, Fludd changed one variable: She told her employees to call people between the ages of twenty-six and thirty-one. The collection rate improved slightly. The next day, they called a subset of that group, cardholders between twenty-six and thirty-one with balances between \$3,000 and \$6,000. Collection rates declined. The next day: Cardholders with balances between \$5,000 and \$8,000. That led to the highest collection rates of the week. In the evenings, before everyone left, managers gathered to review the day's results and speculate on why certain efforts had succeeded or failed. They printed out logs and circled which calls had gone particularly well. That was Fludd's "calendar": the printouts from each day with annotations and employees' comments as well as notes suggesting why certain tactics had worked so well.

With further testing, Fludd determined that her original theory regarding young people was a dud. That, in itself, wasn't surprising. Most of the theories were duds initially. Employees had all kinds of hunches that didn't bear up under testing. But as each experiment unfolded, workers became increasingly sensitive to patterns they hadn't noticed before.

They listened more closely. They tracked how debtors would respond to various questions. And eventually, a valuable insight would emerge—like, say, it's better to call people's homes between 9:15 and 11:50 in the morning because the wife will pick up and women are more likely to pay a family's debts. Sometimes, the debt collectors would develop instincts they couldn't exactly put into words but learned to heed nonetheless.

Then someone would propose a new theory or experiment and the process would start all over again. "When you track every call and keep notes and talk about what just happened with the person in the next cubicle, you start paying attention differently," Fludd told me. "You learn to pick up on things."

To the consultants, this was an example of someone using the scientific method to isolate and test variables. "Charlotte's peers would generally change multiple things at once," wrote Niko Cantor, one of the consultants, in a review of his findings. "Charlotte would only change one thing at a time. Therefore she understood the causality better."

But something else was going on, as well. It wasn't just that Fludd was isolating variables. Rather, by coming up with hypotheses and testing them, Fludd's team was heightening their sensitivity to the information flowing past. In a sense, they were adding an element of disfluency to their work, performing operations on the "data" generated during each conversation until lessons were easier to absorb. The spreadsheets and memos that they received each morning, the data that appeared on their screens, the noises they heard in the background of phone calls—that became material for coming up with new theories and running various experiments. Each phone call contained tons of information that most collectors

never registered. But Fludd's employees noticed it, because they were looking for clues to prove or disprove theories. They were interacting with the data embodied in each conversation, turning it into something they could use.

This is how learning occurs. Information gets absorbed almost without our noticing because we're so engrossed with it. Fludd took the torrent of data arriving each day and gave her team a method for placing it into folders that made it easier to understand. She helped her employees do something with all those memos they received and the conversations they were having—and, as a result, it was easier for them to learn.