

Switch - How to Change Things When Change Is Hard  
by Chip Heath & Dan Heath - 2010

Book video: <https://www.youtube.com/watch?v=qRo0EvqSjw4> 7:44:00

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1. The St Lucia parrot exists only on the Caribbean island of St Lucia. It's gorgeous with a vivid turquoise blue face, lime green wings, and a striking red shield on its chest. In 1977, only 100 St Lucia parrots were left on the island. The population had been decimated by habitat destruction, hunters, and people who had trapped them to use as pets. The St Lucia parrot seemed doomed. In the words of one biologist, the species could not escape oblivion by the year 2000.

Enter an unlikely savior, college student Paul Butler. In 1977, Butler was finishing his last years of studies at Northeast London Polytechnic. Butler's passion was conservation, and he had previously spent five weeks completing a field research expedition in St Lucia, where he'd studied the parrot and submitted recommendations for preserving the species. "Just before graduation, with unemployment staring me in the face," said Butler, he received a letter from the head of St Lucia's forestry department. To Butler's astonishment, he was offered a job. Impressed with Butler's recommendations, the head of forestry asked if Butler was interested in returning for six months as the department's conservation advisor. The job paid \$200 a month, and Butler could stay in a government rest hut. Butler could hardly believe his luck. He was 21 years old, and the government of a beautiful Caribbean island was asking for his help in saving an endangered species.

Butler's recommendations to the government had been straightforward:

1. Beef up the punishment for capturing or killing the parrot, from a trivial fine to an enormous fine and a jail term.
2. Establish within an existing forestry reserve a parrot sanctuary that would protect the parrot's habitat.
3. Raise money for the operation of the reserve by licensing rainforest tours which would offer tourists the chance to see the reserve and its star attraction.

A quick timeout. Notice that these recommendations, changing laws, enforcing new penalties, are exactly the things that we shy away from in this book because most of us don't have those tools in our kit. But here's the thing. Butler didn't have those tools either, and neither did the forestry service. For Butler's recommendations to be put into practice, the island's laws would need to change, which meant in turn, that the public would have to get behind the initiative. So Butler, fresh out of college, working with the forestry department, armed with a budget in the hundreds of dollars, had to figure out a way to rally the people of St Lucia behind a parrot that most of them took for granted, and some of them ate. There was no clear economic case for saving the parrot. It wasn't the linchpin of the ecosystem. And the sad truth was that most St Lucians probably wouldn't have noticed if it disappeared completely. Butler knew he couldn't make an analytic case for protecting the bird. He'd have to make an emotional case.

In essence, Butler's goal was to convince St Lucians that they were the kind of people who protected their own. In public events, Butler stressed: This parrot is ours. Nobody has it but us. We need to cherish it and look after it. He did everything in his power to make the public more familiar with the bird. He hosted St Lucia parrot puppet shows, distributed T-shirts, cajoled a local band to record songs about the bird, convinced local hotels to print up bumper stickers, recruited volunteers to dress up in parrot costumes and visit local schools, and asked local ministers to cite relevant Bible verses, for instance, that instructed believers to be good stewards of the things that were in their trust. He even talked a telecom company into printing up St Lucia calling cards. On one card, the parrot was displayed next to the bald eagle, which was like putting Salma Hayek next to Dick Cheney. It was clear who had the better looking national bird. The St Lucians began to embrace their parrot, as though it had always been part of their national identity. Polls commissioned by Butler showed a dramatic rise in support for the bird. The wave of public support made it possible to pass into law the recommendations that Butler and the forestry department, headed up by Gabriel Charles, had proposed.

As the years passed, the species came back from the brink. At last count, there were between 600 and 700 parrots, an astonishing increase for a species that had been written off. Poaching stopped completely. "No St Lucian has been caught shooting a parrot for 15 years," said Butler in 2008. In 1988, the government gave Butler full citizenship and later awarded him the St Lucia Medal of Merit, one of the country's highest honors. He had shown St Lucians what it meant to take pride in their identity, and in the process, he'd become a St Lucian himself.

2. Other people noticed what Butler had accomplished. In the 1980s, a board member from RARE, a conservation organization, asked Butler if he would come to St Vincent and do what he had done in St Lucia. Intrigued, Butler joined RARE, working alongside St Vincent's forestry division as Chief Forest Officer. Within a year, the island passed laws to protect its own native parrot. Butler and the other native leaders of RARE realized they had cracked one of the most pressing problems of conservation. It's very difficult to protect the precious areas of the world without the support of the residents of those areas. But RARE proved it could inspire those residents to care about their environment. So RARE conservationists resolved to launch similar projects, which they began to call "pride campaigns", all around the world. By 2009, RARE had successfully launched 120 pride campaigns in 50 different countries from Panama to Indonesia. Full disclosure: inspired by this work, Dan Heath joined RARE's board of trustees in 2009. Pride campaigns focused on animals ranging from the Loggerhead Turtle to the Napoleon Wrasse, a brilliant blue fish whose habitat is coral reefs.

We've seen that one way to motivate a switch is to shrink the change, which makes people feel big relative to the challenge. But here we are seeing something different. Paul Butler didn't shrink the change. Instead, he grew the people. He made the St Lucians swell with pride over their parrot, a species that exists nowhere else. He inspired them to feel more determined, more ready, more motivated. And when you build people up in this way, they develop the strength to act.

3. RARE's success in motivating people in 50 countries suggests that something universal is at work here. Confirmation of that comes from the research of James March, a professor of political science at Stanford University. March says that when people make choices, they tend to rely on one of two basic models of decision making: the Consequences model or the Identity model.

The Consequences model is familiar to students of economics. It assumes that when we have a decision to make, we weigh the costs and benefits of our options, and make the choice that maximizes our satisfaction. It's a rational, analytical approach. This is the approach that Paul Butler knew would fail with St Lucians, because there simply wasn't a strong cost-benefit case for the parrot.

In the Identity model of decision making, we essentially ask ourselves three questions when we have a decision to make.

1. Who am I?
2. What kind of situation is this?
3. What would someone like me do in this situation?

Notice what's missing: any calculation of costs and benefits. The Identity model explains the way most people vote, which contradicts our notion of the self-interested voter. It helps to shed light on why an auto mechanic in Oklahoma would vote against a Democrat who'd give him health insurance, and why a Silicon Valley millionaire would vote against a Republican who'd cut his taxes.

Generally, when we use the word "identity" we're talking about an immutable trait of some kind, such as a regional, racial, or ethnic identity. But that's a relatively narrow use of the term. We're not just born with an identity, we adopt identities throughout our lives. We aspire to be good mothers or fathers, devout Catholics or Muslims, patriotic citizens, and so on. Or consider a professional identity, such as being a scientist. Clearly you're not born a scientist. It's an identity that you seek out, and one that others, such as your professors and mentors, consciously cultivate in you. As you develop and grow in that identity, it becomes an increasingly important part of your self-image, and triggers the kind of decision making that March described.

For instance, imagine that as a science professor teaching chemistry, you had a lucrative opportunity to consult on the toxicity study of a new drug for a big pharmaceutical company. From a Consequences point of view, the decision to accept the job would be a no-brainer. The work might pay far more than your university salary. But from an identity point of view, the decision to accept the job might seem less clear cut. You'd wonder what strings are attached? What subtle compromises you'd have to make to please the client? You'd wonder: What would a scientist like to do in this situation?

Because identities are central to the way people make decisions, any change effort that violates someone's identity is likely doomed to failure. That's why it's so clumsy when people instinctively reach for incentives to change other people's behavior. So the question is this. How can you make your change a matter of Identity rather than a matter of Consequences?

4. Lovelace Hospital Systems in Albuquerque New Mexico was concerned about the rapid turnover among its nurses. Its turnover rate wasn't any worse than the national average, between 18 and 30 percent per year. But that was small comfort. When nurses left, replacing them cost a lot of money. Morale suffered and patient care was put at risk during the transition period. Kathleen Davis, a registered nurse and vice president of hospital operations, decided to try an unconventional approach to analyzing the turnover problem. She hired Susan Wood, a

consultant who specialized in appreciative inquiry, a process for changing organizations by studying what's working rather than what's not. This is another example of the bright-spots focus that we discussed in chapter 2. Wood and Davis decided not to investigate why so many nurses were leaving. Instead they began to explore why other nurses were staying. In a hospital with 300 nurses, the team interviewed more than 100.

Wood asked nurses what made their jobs satisfying. She recalled, "These nurses were beaten down and overworked. But as soon as we started them in a conversation about what they were good at, the tone changed." Davis and Wood found that the nurses who stayed at the hospital were fiercely loyal to the profession of nursing. In other words, their satisfaction was an identity thing. The nobility of the nursing profession gave meaning to their work. Once the hospital administrators realized this, they knew they'd have to do more to help the nurses cultivate their identity. For instance, they began to find ways to recognize people for extraordinary nursing performance. They developed a new orientation program that stressed the inherently admirable nature of nursing work. They created mentorship programs to help nurses improve their knowledge and skills.

The first hint that something had changed was evident on the annual employee satisfaction survey. Nursing satisfaction increased markedly in multiple categories, particularly communication. All those interviews and conversations about identity had an impact. But the impact went beyond the survey. Over the following year, turnover decreased by thirty percent, and then the success made an unexpected leap. On regional surveys, Davis and Woods started seeing improved ratings on patient satisfaction with Lovelace Hospital.

It's critical to realize that these identity stories aren't just special case situations, confined to scientists or nurses or St Lucians. Identity is going to play a role in nearly every change situation. Even yours. When you think about the people whose behavior needs to change, ask yourself whether they would agree with this statement: "I aspire to be the kind of person who would make this change." If their answer is, "Yes," that's an enormous factor in your favor. If their answer is, "No," then you'll have to work hard in order to show them that they'll have to aspire to a different self-image. And that's exactly what Paul Butler did in St Lucia. He convinced the island citizens to think, "This is our bird. If we want to be good St Lucians, we'd better protect it."

To see what this means in a business context, consider a firm that invented an identity that subsequently became the engine of its success. The firm is Brasilata. It's a 170 million dollar manufacturing firm in Brazil that produces various kinds of steel cans. As you'd imagine, the can manufacturing industry is relatively mature, not much growth, not much excitement. But Brasilata defies the stereotype of a boring stuck-in-its-ways manufacturer. In fact, it has one of the best reputations for innovation of any company in Latin America. How does a manufacturer of cans become known as an innovator? Brasilata's founders were inspired by the philosophy of Japanese car manufacturers, like Honda and Toyota, which empowered their frontline employees to take ownership of their work. For instance, at Toyota, any employee who spotted a defect could stop the assembly line. This would have been unthinkable in Detroit at the time. Toyota and Honda also actively solicited ideas for innovation from their employees.

In 1987, the founders of Brasilata launched an employee innovation program modeled on the Japanese forerunners. A new identity was the core of the program. Employees of Brasilata became known as "inventors". And when new employees joined the firm, they were asked to sign an innovation contract. This wasn't simply feel-good language. Top management challenged employees to be on the lookout for potential innovations, ideas for how to create better products, improve production processes, and squeeze costs out of the system. Procedures developed within the factory made it easier for inventors to submit their ideas.

The program succeeded beyond any reasonable expectations. In 2008, employees submitted 134,846 ideas, an average of 142.5 ideas per inventor. This figure puts Brasilata on par with the Japanese trend setters that had inspired the program. Many of the suggestions led to the development of new products. For instance, in 2008, Brasilata came up with a new approach for steel cans designed to carry dangerous or flammable liquids. To meet United Nations standards, such cans must be able to withstand a drop from 1.2 meters, roughly four feet. Traditionally, most manufacturers had reached this standard by thickening the metal layers which used up more raw material and required new production processes. And the reinforced designs weren't foolproof. The metal seams were prone to split if a metal can landed on an edge. Brasilata's inventors suggested a new design, inspired by car bumpers that collapse on impact. Their new steel can deformed slightly on impact, reducing stress on the critical seam. The new design resisted impact better while also reducing the amount of steel in the can.

The inventors have led Brasilata through emergencies. In 2001, a severe energy crisis, the blackout syndrome, forced the government of Brazil to ration energy. Businesses received a strict quota of energy. The inventors went to work dreaming up power-saving ideas, hundreds of them. Within a few weeks, Brasilata's energy consumption was reduced by 35 percent, falling below the company's quota, and allowing the company to resell its extra energy.

Another unexpected idea was jointly suggested by two employees. "Eliminate our jobs. They are not necessary anymore." The idea was accepted, but the company found a new place for the employees. Brasilata has a no-dismissal policy and also distributes 15 percent of its net profits to employees. It's no surprise that Brasilata consistently appears on best-places-to-work lists in Brazil.

Let's remember something. This inventor identity, which has fueled business success and employee satisfaction, was made up. None of Brasilata's employees were born inventors. The identity was introduced to them, and they liked the sound of it. It seemed to be a mantle worth wearing. Being an inventor became a source of pride and strength.

5. If cultivating an identity sounds daunting, take heart. A classic study in psychology shows that you can start with small steps. In the 1960s, two psychologists from Stanford University, Jonathan Freedman and Scott Fraser, asked the researchers to go door to door in an upscale neighborhood in Palo Alto California. When homeowners answered the door, the researcher announced himself as a volunteer for "Citizens for Safe Driving" and asked whether they would allow a billboard reading "Drive Carefully" to be installed on their lawns. They were shown a billboard on a lawn of a different house, and it was a real eyesore, crudely constructed and so enormous that it obscured much of the front of the house. The homeowners were assured that the sign would make "just a small hole in your lawn." No doubt if this volunteer knocked on

your door, you'd have a colorful response. And indeed, 83 percent of the homeowners passed on the "opportunity". But here's the twist. In a different neighborhood, the researchers used a simple technique that more than quadrupled the number of yeses. The technique was remarkably subtle. Two weeks earlier the same homeowners had been approached by a volunteer claiming to be from a different driver safety organization. They were asked to put a tiny driver safety sign, less than half the size of a postcard, in the window of their car or home. The volunteer said the sign was intended to make citizens more aware of the need to drive safely. This seemed such a trivial commitment that almost all the homeowners said yes. Their little yes seemed to pave the way for the big yes. When the researchers came back two weeks later and asked the homeowners to install the eyesore billboard, 76 percent accepted it.

Freedman and Fraser called this strategy the "foot in the door" technique. Accepting the tiny safety-driver sign greatly increased the likelihood that the homeowners would accept the gigantic driver safety sign. Then the results got even stranger. Volunteers approached a third group of homeowners with a different request. Rather than being presented with a tiny sign about driving safety, homeowners in the third group were asked to sign a petition to "Keep California Beautiful". Hard to oppose that. So again almost everyone complied. Then two weeks later, those petition signers were approached about hosting the eyesore billboard, and half of them said yes. That's three times the acceptance rate of the homeowners who hadn't signed the petition. This result confused even Freedman and Fraser. They hadn't expected the "Keep California Beautiful" petition to be a "foot in the door" for a commitment to driver safety. The two domains were completely unrelated. After some reflection, they speculated that the petition signing might have sparked a shift in the homeowners' sense of identity. Freedman and Fraser wrote, "once the homeowner has agreed to the request, his attitude may change. He may become, in his own eyes, the kind of person who does that sort of thing, who agrees to requests by strangers, takes action on things he believes in, who cooperates with good causes. In a sense, signing the petition became evidence to the homeowners that they were concerned citizens, and this subtle shift in identity led to a shift in their behavior.

Two weeks later when they were approached with the option to put up the billboard on their lawns, they subconsciously asked themselves James March's three identity questions. "Who am I? What kind of situation is this? What would someone like me do in this situation?" If you consider yourself to be a "fit in with the neighbors" person, you'll deny the request. If you consider yourself to be an "immaculate lawn" person, you might assault the researcher. But if you're a newly hatched "concerned citizen", you might find it honorable to host the sign.

6. Now, let's be clear. The Freedman-Fraser study is kind of sleazy. We'll try to separate the sleazy part from the science part. The sleazy part is the deception. The homeowners are being tricked into doing something stupid. None of the other examples we have provided for building identity hinges on this kind of deception. Is it deception to persuade people to rally behind a national bird? To cultivate professional pride in nurses? To encourage employees to act like inventors? Of course not. No one at Brasilata would have been disturbed to hear the CEO say, "We're trying to get you to think and act more like an inventor, because that will make our company more competitive and innovative." The yard sign study is different. Homeowners would indeed have been offended if Freedman and Fraser had come clean and said, "We're

asking you sign this petition so that, two weeks from now, we can dupe you into putting a giant billboard on your lawn."

Leaving aside the sleaze factor, the science of the billboard study says something pretty remarkable. It shows us that people are receptive to developing new identities, that identities grow from small beginnings. Once you see yourself as a concerned citizen, you'll want to keep acting like one. That's tremendously good news for someone leading a change effort. It means, for example, that if you can show people why the environment is worth caring about, it won't take years for them to think of themselves as environmentalists. It took only a few days for the homeowners to think of themselves as concerned citizens.

7. There is a problem though. a new identity can take root quickly, but living up to it is awfully hard. For instance, it probably took a while before Brasilata's employees were any good at inventing. At first, they probably struggled to come up with any suggestions for the company, and they might have felt like impostors calling themselves inventors. We can empathize. At different times in our lives, both of us, Chip and Dan, were urged by our significant others to take salsa dancing lessons. This was not our first choice of weekend activities, but we agreed to give it a shot. The fantasy was an attractive one. We could picture ourselves with our partners, full of passion and artistic flair, drawing envious glances from passersby. No question, this dancer identity had appeal. It did not take long for us to realize how misguided our fantasies were. All too quickly, we discovered that salsa is a sadistic style of dancing, created for the purpose of making middle aged men feel ridiculous. Salsa requires an array of sensual hip movements that we found structurally implausible. We managed to perform this beautiful dance with all the seductive force of Al Gore giving a lap dance.

We did not continue with our salsa lessons. Here's the thing. When you fight to make your switch, especially one that involves a new identity, you and your audience are going to have "salsa moments". Don't worry, we're not going to adopt that as a buzz phrase. Any new quest, even one that is ultimately successful, is going to involve failure. You can't learn to salsa dance without failing. You can't learn to be an inventor, or a nurse, or a scientist, without failing. Nor can you transform the way products are developed in your firm, or change minds about urban poverty, or restore loving communication with our spouse, without failing. And the elephant really really hates to fail. This presents a difficulty for you. When you are trying to change or when you are trying to lead change, you know that you or your audience will fail. And you know that the failure will trigger the flight instinct, just as the two of us fled our salsa lessons. How do you keep the elephant motivated when it faces a long treacherous road? The answer may sound strange. You need to create the expectation of failure. Not the failure of the mission itself, but failure en route. This notion takes us into a fascinating area of research that is likely to change the way you view the world.

8. Write down the following four sentences, and whether you agree or disagree with each of them.
1. You are a certain kind of person. There is not much that can be done to really change that.
  2. No matter what kind of person you are, you can always change substantially.
  3. You can do things differently but the important parts of who are can't really be changed.
  4. You can always change basic things about the kind of person you are.

If you agree with items 1 and 3, you are someone who has a fixed mindset. And if you agree with items 2 and 4, you tend to have a growth mindset. If you agreed with both 1 and 2, you are confused. As we'll see, which mindset you have can help determine how easy it will be for you to handle failure, and how dogged you will be in pursuing change. It might even determine how successful you will be in your career.

People who have a fixed mindset believe their abilities are basically static. Maybe you believe you are a pretty good public speaker, an average manager, and a wonderful organizer. With a fixed mindset, you believe you might get a little bit better or worse at those skills. But basically your abilities reflect the way you are wired. Your behavior then is a good representation of your natural ability, just as the swirled and sniffed first taste of wine is a good representation of the bottle you've bought.

If you are someone with a fixed mindset, you tend to avoid challenges because if you fail, you fear others will see your failure as an indication of your true ability and see you as a loser, just as a bad taste of wine leads to you reject the bottle. You feel threatened by negative feedback because it seems as if the critics are saying they're better than you, positioning themselves at a level of natural ability higher than yours. You try to be exerting not too much effort. People who are good don't really need to try that hard, right? Think about tennis player John McEnroe as a young star. He had great natural ability, but was not keen on rigorous practice or self-improvement.

In contrast, people who have a growth mindset believe that abilities are like muscles. They can be built up with practice. That is, with concerted effort, you can make yourself better at writing or managing or listening to your spouse. With a growth mindset, you tend to accept more challenges despite the risk of failure. After all, when you try and fail to lift more weight at the gym, you don't worry that everybody will mock you as a born weakling. You seek out stretch assignments at work. And you're more inclined to accept criticism because ultimately it makes you better. You may not be as good as others right now, but you're thinking long term in a tortoise-vs-hare kind of way. Think Tiger Woods who won eight major championships faster than anyone in history, then decided his swing needed an overhaul.

Fixed versus growth. Which are you? This isn't one of those Cosmo personality quizzes in which there are no wrong answers. Are you a Labrador retriever or a poodle? Carol Dweck, a professor of Psychology at Stanford University, has spent her career studying these two mindsets. She is the source of the terms, and her research results are clear. If you want to reach your full potential, you need a growth mindset.

Dweck has studied how these two mindsets influence the performance of Olympic athletes and virtuoso musicians and everyday business people. In her must-read book, *Mindset, the New Psychology of Success*, she makes an airtight case that a growth mindset will make you more successful at almost anything. That's because people with a growth mindset, those who stretch themselves, take risks, accept feedback, take the long-term view, can't help but progress in their lives and careers.

Once you become aware of these concepts, you start to spot the fixed mindset everywhere. Look at the way we praise our children. "You're so smart. You are so good at basketball."



That's fuel for the fixed mindset. A growth mindset praises effort rather than natural skill. "I'm proud of how hard you worked on that project. I can tell you listened to your coach's comments. You really had your elbow under those jump shots today." Our salsa dancing experience was a classic example of a fixed mindset failure.

After trying an unfamiliar movement for a while, we concluded, definitely, that we were terrible salsa dancers and were born that way. And we quit because letting other people see that natural lack of ability made us uncomfortable. Someone with a growth mindset never would have jumped to this conclusion. In fact, they never would have expected to be any good at salsa early on. The mindset would make all the difference, which of course, prompts an obvious question. can people with a fixed mindset learn to adopt a growth mindset?

9. In 2007, Dweck and two colleagues, Kali Trzesniewski of Stanford and Lisa Blackwell of Columbia decided to run an experiment on junior high school students. If they trained the students on the growth mindset, would the kids get better at math? Junior high is, as you know, a tough transition time for kids. Most people have decidedly mixed memories of junior high, and 40 percent of people actually rank adolescence as the worst time in their lives. Presumably the other 60 percent didn't have acne. Just as puberty begins to kick in, students move to new schools with harder work and a new crop of teachers who don't give them the individual attention they got used to in elementary school. Junior high is a turning point for fixed mindset kids.

Dweck found that in elementary school, fixed mindset students do about as well as growth mindset students, but in junior high, suffer an immediate drop in grades and then continue to slide in the next few years. The students in Dweck's study often came up with fixed mindset explanations for their decline. "I am the stupidest." "I suck in math." Notice how they are talking about their abilities as permanent traits, as if they are saying, "My eyes are brown." Other students tended to place the blame elsewhere, saying things like, "I don't do well because the teacher is on crack," or "My math teacher is a fat male slut."

Dweck and her colleagues set up a study for seventh grade math students in a school where 79 percent of students were eligible for the Federal Free Lunch program, exactly the kind of low socio-economic environment in which students are at risk for starting a pattern of academic failure. The control group was taught generic study skills, and the experimental group was taught the growth mindset. The growth mindset students were taught that the brain is like a muscle that can be developed with exercise, that with work, they could get smarter. "After all," Dweck told them, "nobody laughs at babies and says how dumb they are because they can't talk." Classroom mentors asked the students to think about skills they already had learned. "Remember when you first stepped onto a skateboard or played guitar hero?" and to recall how practice had been the key to mastering those skills. Students were reminded that everything is hard before it is easy, and that they should never give up because they didn't master something immediately.

In total, the students in the growth mindset group received two hours of "brain is like a muscle" training over eight weeks and the results were astonishing. Students in the control group who were taught generic study skills started out their seventh-grade year with math grades at about a C-plus level. Over the course of the year, their grades slipped to a C and then toward C-minus. The "brain is like a muscle" training however stopped this slide and reversed it. The students

who received it significantly outperformed their peers. Some students made dramatic transformations. In mindset, Dweck reported, "One day we were introducing the growth mindset to a new group of students. All at once, Jimmy, the most hard-core, turned off kid in the group, looked up with tears in his eyes and said, 'You mean I don't have to be dumb?'" From that day on, he worked. He started staying up late to do his homework, which he never used to bother with at all. He started handing in assignments early so he could get feedback and revise them.

These kids believed that working hard was not something that made you vulnerable, but something that made you smarter. The teachers, unaware of the experimental conditions their students were assigned to, were asked to identify the students who they thought had experienced a positive change during the spring term. 76 percent of the students they identified were in the "brain is like a muscle" training group. Those results were dramatically out of proportion with the intervention itself. Math is a cumulative topic, after all, and the students in this experiment were already a third of the way into the spring term. Two hours of instruction in the junior high sandstorm of hormones and popularity and YouTube should have had all the transformative effect of an after-school lecture on the food pyramid. Instead, two hours of training and how to think about intelligence made students demonstrably better at math. Dweck proved that the growth mindset can be taught, and that it can change lives.

10. In the business world, we implicitly reject the growth mindset. Business people think in terms of two stages: you plan and then you execute. There's no learning stage or practice stage in the middle. From the business perspective, practice looks like poor execution. Results are the real thing. We don't care how you do it. Just get it done. But to create and sustain change, you've got to act more like a coach and less like a scorekeeper. You've got to embrace a growth mindset and instill it in your team. Why is that so critical? Because, as Harvard Business School professor Rosabeth Moss-Kanter observes in studying large organizations, everything can look like failure in the middle. A similar sentiment is expressed by marriage therapist Michell Wiener-Davis who says that real change, the kind that sticks, is often three steps forward and two steps back. If failure is a necessary part of change, then the way people understand failure is critical.

The leaders at IDEO, the world's preeminent product design firm, have designed products and experiences ranging from the first Apple mouse to a new Red Cross blood donation procedure. They understand the need to prepare their employees, and more important their clients, for failure. Tim Brown, the CEO of IDEO, says that every design process goes through foggy periods. One of IDEO's designers even sketched out a project mood chart that predicts how people will feel at different phases of a project. It's a U-shaped curve with a peak of positive emotion labeled "Hope" at the beginning and a second peak of positive emotion labeled "Confidence" at the end. In between the two peaks is a negative emotion value labeled "Insight". Brown says that design is rarely a graceful leap from height to height. When a team embarks on a new project, team members are filled with hope and optimism as they start to collect data and observe real people struggling with existing products. They find that new ideas spring forth effortlessly. Then comes the difficult task of integrating all those fresh ideas into a coherent new design. At this insight stage, it's easy to get depressed because insight doesn't always strike immediately. The project often feels like a failure in the middle. But if the team persists through this valley of angst and doubt, it eventually emerges with a growing sense of momentum. Team

members begin to test out their new designs and they realize the improvements they've made, and they keep tweaking the design to make it better. And they come to realize, "We've cracked this problem." That's when the team reaches the peak of confidence.

Notice what team leaders at IDEO are doing with "peaks and valley" visual. They're creating the expectation of failure. They are telling team members not to trust that initial flush of good feeling at the beginning of the project, because what comes next is hardship and toil and frustration. Yet, strangely enough, when they deliver this warning, it comes across as optimistic. That's the paradox of the growth mindset. Although it seems to draw attention to failure, and in fact encourages us to seek out failure, it is unflinchingly optimistic. We will struggle, we will fail, and we will be knocked down. But throughout, it will get better and will succeed in the end.

The growth mindset then is a buffer against defeatism. It reframes failure as a natural part of the change process. And that's critical, because people will perceive failure as a natural part of learning rather than as failing. This lesson was learned the hard way by several hospitals that were trying to embrace a new kind of heart surgery called Minimally Invasive Cardiac Surgery, MICS. Amy Edmondson, a professor at Harvard Business School, studied the way that sixteen hospitals implemented MICS. Traditional open heart surgery is very invasive. A patient's breast bone is split open. His or her blood is circulated through a heart bypass machine and the heart is stopped. MICS is much less invasive because it allows the heart to be fixed without the chest being opened. Surgeons sneak up to the heart through a small three-inch incision between two ribs. Meanwhile a tiny catheter with an inflated balloon is threaded through the groin, guided into the aorta, and then inflated, blocking blood flow from the inside. The surgeon proceeds to operate using the small cramped horizontal space between the ribs. That cramped operating space changes everything about the surgery. With open heart surgery, the surgeon blocks off the aorta with external clamps, like putting a chip clip on a really precious bag of Doritos. No input is needed from the surgical team. With MICS, the balloon gizmo must act as an internal clamp, inflating to block the flow of blood. The surgeon can't see it or feel it, yet has to inflate it in exactly the right place at exactly the right pressure. To accomplish this, the surgeon must rely heavily on the anesthesiologist to monitor the path of the balloon as it moves toward the heart. Once the balloon is finally in place and inflated, the work still isn't done. The balloon's position has to be monitored continuously to make sure that blood isn't flowing past it. As one nurse said, "When I read the training manual, I couldn't believe it. It was so different from standard cases." The procedure requires precarious maneuvers in a life or death situation by a team mostly blinded. Kind of like landing a jet on an aircraft carrier at night, not that we know what either of these things feels like. We just picture both as being substantially more dangerous than writing a nonfiction book.

But there's a big payoff for these precarious maneuvers: a lot less suffering for the patients. MICS patients go home from the hospital in four days instead of eight. And they recover fully in three weeks instead of two months. The promise of MICS then is that it offers big benefits to the patients of teams that adopt it. But only if the surgery teams are willing to endure the initial learning period. Lots of new technologies require this tradeoff. Think of architects who stopped creating drawings by hand and started using computer aided design, or distributors who learned to use PDA's in the field to track their shipments and deliveries. Pain now for a payoff later.

Edmondson studied sixteen hospitals as they adopted the new MICS technology. She found that some hospitals successfully learned and embraced the new technique. But several failed and retreated back to open heart surgery. What she learned about the successful and unsuccessful teams is powerful testimony to the power of the growth mindset.

11. The most successful teams learned to adopt what Edmondson called a "learning frame". Members of these teams pictured MICS as something that would be difficult at first, but would get easier over time if they were open to change how they behaved and how they communicated. At Mountain Medical Center, Doctor M adopted a learning frame. He often wore a head camera which allowed the team to see what was going on, and he encouraged questions about what he was doing and why. He also made sure his team practiced diligently. He deliberately scheduled the first six MISC cases in the same week so team members could practice repeatedly with no chance of forgetting what they were learning in the lag times between cases. He also ensured that the same team would be together on the first fifteen cases. After that, he added new members one at a time so each new person could learn without introducing much risk to the procedure. Mountain medical center had great success using MICS, and the success can be attributed to the growth mindset. Doctor M put the focus on practice, he acted as a coach, and he set up the team to allow maximum chances to learn and improve.

Other hospitals abandoned their adoption of MICS. At Decorum Hospital, the chief cardiac surgeon, Doctor D, was motivated to adopt MICS for competitive reasons. "We'd like everyone to know we can do it. It's a marketing thing. Patients want to know we can do it. His team members talked about adopting the procedure to keep up with the Joneses, the other large hospitals in the area. MICS was seen then almost like a desirable new toy to be acquired, especially since all the cool kids had one. Doctor D ended up implementing the procedure in a unique way. He continued to split the breast bones of his patients, albeit with a smaller incision. One of his nurses remarked, "Doctor D is a creature of habit." And the old habits eventually won out. The use of the new procedure gradually dwindled and eventually it was abandoned.

Across the hospitals she studied, Edmondson found that the teams who failed made the mistake of trying to get it right on the first try, and were motivated by the chance to perform, to shine, or to execute perfectly. But of course, no one shines on the first few tries. This mindset set the teams up for failure. By contrast, the successful teams focused on learning. They didn't assume that mastery would come quickly, and they anticipated that they'd face challenges. In the end, they were the ones who were more likely to get it right.

Failing is often the best way to learn, and because of that, early failure is a kind of necessary investment. A famous story about IBM makes that point well. In the 1960s, an executive at IBM made a decision that ended up losing the company 10 million dollars, about 70 million dollars in 2009 dollars. The CEO of IBM, Tom Watson, summoned the offending executive to his office at corporate headquarters. The journalist Paul B Carroll described what happened next. As the executive cowered, Watson asked, "Do you know why I've asked you here?" The man replied, "I assume I am here so you can fire me." Watson looked surprised. "Fire you?" he asked. "Of course not. I just spent 10 million dollars educating you."

12. In 1995, Molly Howard, a long time special education teacher in Louisville Georgia, watched as the new Jefferson County high school was being built. "Every day I'd drive by the building and I'd wonder, Who's gonna run that school? And it kept tugging at me. Why don't you apply?" Howard said. She applied and got the job. But with the promotion came a very tough challenge. 80 percent of the school students lived in poverty. Only 15 percent of students in the previous high school had continued on to college. "The kids you'd expect to be successful were successful," said Howard. "But what about the other 85 percent? Many teachers had a defeatist attitude. There was this belief that some children can and some children can't. That we're here for the ones who can get it, and we've got to accept that we're going to lose some. I knew that I'd have to challenge that," said Howard.

Howard acted quickly. First, she had to sell a new identity. Howard believed that every student could aspire to go to college. So she abolished the school's two-track system that had separated college-bound students from vocational students. In her school, everyone would share the college-bound identity. She beefed up assessments and tutorial programs. She matched students with teachers who'd be their on-campus advisors for all four years. Perhaps her most distinctive change though was to the grading system. Under the new system, the only grades offered at Jefferson County high school were: A, B, C, and NY. Not Yet. In Howard's view, the students at Jefferson had accepted a cultural failure. In a fixed mindset way, they acted as though they were failures to the bone. Students often didn't do their homework, or they turned in shoddy work. Getting a D or an F was an easy way out, in a way. They might get a poor grade, but at least they would be done. In the new system, the students couldn't stop until they'd cleared the bar. "We'd defined up front to the kids what's an A, B, and C," said Howard. If they do substandard work, the teacher would say, "Not yet." That gives them the mindset, "My teacher thinks I can do better." It changes their expectations. The school was reborn. Students and teachers became more engaged. The school's graduation rate increased dramatically. And student test scores went up so much that remedial courses were eliminated.

In 2008, the National Association of Secondary School Principals declared Howard the U.S. Principal of the Year out of 48 thousand candidates. Howard transformed her students. She cultivated a new identity in them. "You're all college-bound students." Then she flipped them from a fixed mindset school to a growth mindset school. She believed that every student was capable of doing acceptable work, that no student was doomed to failure. There's no Never at Jefferson any more, only a Not Yet.

13. In times of change, we need to remind ourselves and others again and again of certain basic truths. Our brains and our abilities are like muscles. They can be strengthened with practice. We're not born skateboarders or scientists or nurses. We must learn how to skateboard, do science, or care for sick people. And our inspiration to change ourselves comes from our desire to live up to those identities.

In the story of Molly Howard, we see that amazing things can happen when you combine the aspiration of a new identity with a persistence of the growth mindset. That's how you grow your people. Over the past few chapters, we've seen that the central challenge of change is keeping the elephant moving forward. Whereas the rider needs direction, the elephant needs motivation. And we've seen that motivation comes from feeling. Knowledge isn't enough to motivate

change. But motivation also comes from confidence. The elephant has to believe that it's capable of conquering the change. And there are two routes to building people's confidence, so that they feel big relative to their challenge. You can shrink the change or grow your people, or preferably both. Our picture of change is still incomplete though. Because it is clear that in some situations, even a reluctant elephant and a confused rider will manage to change their behavior. For instance, consider the fact that even a lost angry driver who is hopelessly late for an appointment will stop dutifully for a red light. That's why, to make changes stick, we've got to think about shaping the path.