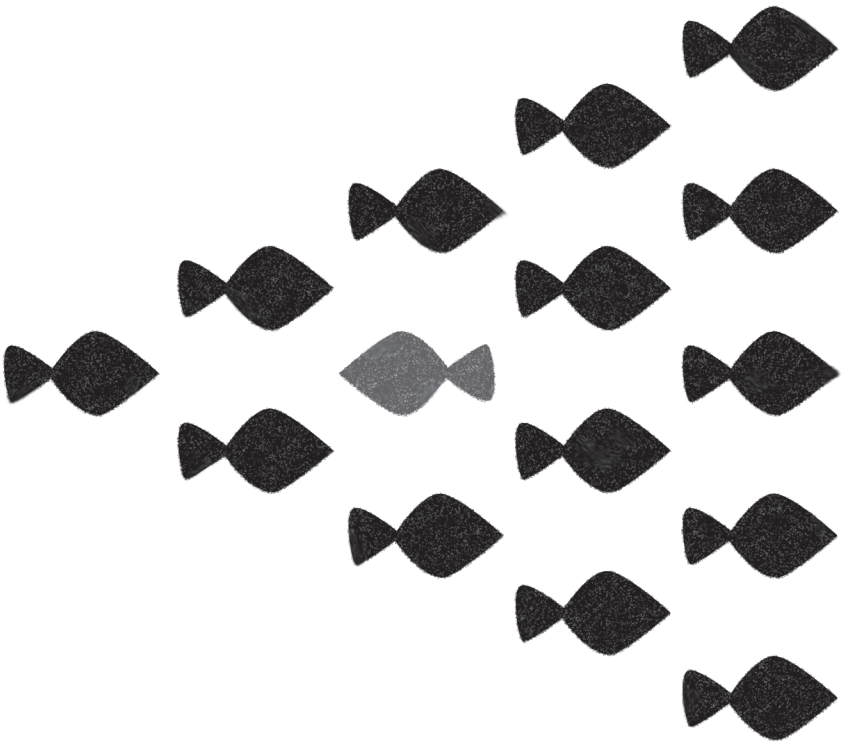
Higher Unlearning:

39 Post-Requisite Lessons for Achieving a Successful Future



Jack Uldrich

Author of *Unlearning 101: 101 Lessons in Thinking Inside-Out the Box*

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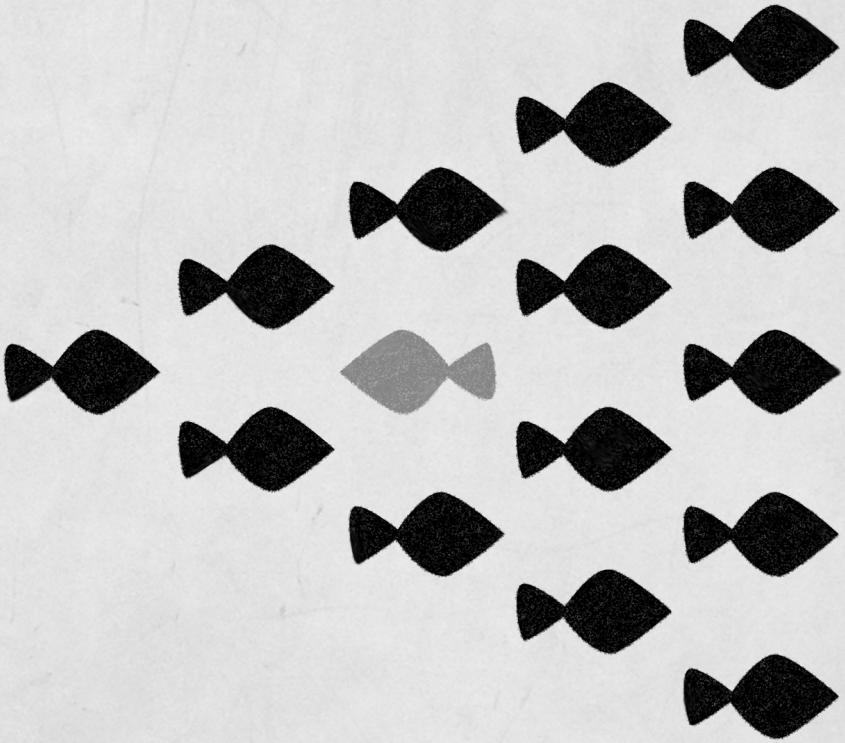

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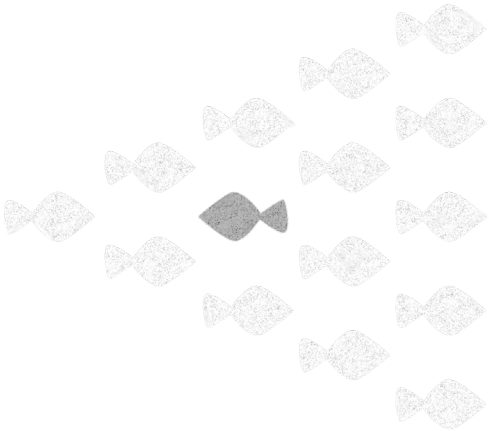
To my children,
Meghan and Sean,
never stop learning —
and unlearning.



Introduction

What if learning more, acquiring ever-increasing amounts of information and completing all the mandatory prerequisites at school, work and in life were no longer sufficient for guaranteeing future success? What if, instead, there were post-requisite lessons that require you to unlearn much of what you have previously learned?

This future has arrived, and as Alvin Toffler so presciently wrote forty years ago, "The illiterate of the twenty-first century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn." Great emphasis has always been paid to learning and, recently, more attention has been placed on relearning but the middle concept—unlearning—has been widely ignored. Alas, some new learning can't take place until some unlearning occurs first. The following thirty-nine lessons are

easy to digest and designed to get you started down the productive and profitable path of unlearning.

The format for each chapter is straightforward. Each begins with a quotation and is followed by a simple question. At the end, a short "homework assignment" is given. The purpose of this structure is threefold. First, as Benjamin Disraeli once said, "The wisdom of the wise and the experience of the ages are perpetuated by quotations." I agree and I have selected a unique quotation to begin each lesson to emphasize the idea that while my words on unlearning may be new, the concept is not. In fact, the importance of unlearning has been recognized for eons—from Aristotle and Zeno to more contemporary individuals as varied as architects and authors, business gurus and Buddhist scholars, Catholic and Confucian philosophers, feminists and futurists, poets and professors, statesmen and science fiction sages alike. All have agreed unlearning is a necessary and vital skill.

Second, I have chosen to follow each quotation with a question because, as Francis Bacon wrote more than 300 years ago, "A prudent question is one-half of wisdom." Each question was selected for one reason: Most people believe they know the answer to the questions being asked, but their answers are almost always wrong. In other words, each question selected demonstrates that 1) most people think they know more than they do and 2) the recognition of their faulty knowledge will serve as a tangible reminder that continued advancement is often as much a matter of stepping back and unlearning as it is advancing forward in the form of

new learning. Because I immediately provide the answer to each question after it is posed in each chapter, I strongly encourage all readers to first attempt to answer all thirty-nine questions in the Pre-Quiz beginning on Page 5. If you are confident in your knowledge, I invite you to write down your answers in ink—especially the answer to Question 38.

Lastly, each chapter will conclude with a "homework assignment" to both demonstrate that unlearning has broad applicability as a life skill, and to reinforce the idea that in order to reap the full benefits of unlearning, one must understand that it is a skill that must be constantly honed and applied.

Before going any further, let me say that I don't consider myself an expert on unlearning. Rather, this book has its humble origins in a file I began compiling back in 2005 of various facts, assumptions, habits and beliefs I found I needed to unlearn. In fact, most of the questions posed in this book were chosen because I originally provided the wrong answer and subsequently had to unlearn what I thought I knew. I therefore approach the topic of unlearning with a great deal of humility; I do, however, believe it is a critical skill and I hope that by the end of the book you'll agree.

I now conclude this brief introduction with a quotation from Aristotle who said, "It is the mark of an educated mind to be able to entertain a thought without accepting it." I invite and encourage you to approach this book in this same open-minded spirit. Feel free to entertain each

lesson without being compelled to accept it. I say this not because I lack confidence in the concept or importance of unlearning, but because it is the nature of unlearning that we must all—and I include myself in this category—embrace the idea that someday in the future we may even have to unlearn how we think about unlearning.

In this spirit of intellectual humility, let the unlearning commence!

Pre-Quiz

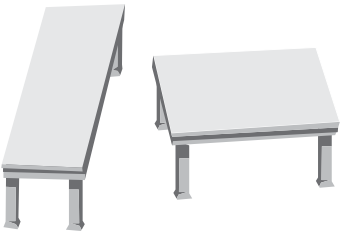
Question 1: Estimate the number of people you expect to die in the United States from the following causes over the course of the following year:

A. Homicides _____ or Suicides _____
B. Floods _____ or Tuberculosis _____
C. Tornadoes _____ or Asthma _____

Question 2: What is the world's tallest mountain?

Question 3: Take a look at the picture below. What do you see?

Question 4: If you had to select one of these two tables to fit into a long, narrow space, which would you select?



Question 5: On a game show, you are given the option of choosing a gift behind one of three doors. Behind one door is a new car; behind the other two are goats. After you have made your selection, the game host (who knows what's behind each door) opens one of the doors to reveal a goat, and then gives you the option of switching your selection. Is it in your best interest to do so?

Question 6: Which of these animals is more likely to kill you: a shark or a deer?

Question 7: Write or trace the letter "E" on your forehead. (That's it. No other instructions will be provided.)

Question 8: In hospitals, what action is estimated to reduce the risk of infection from catheters by as much as 90 percent?

Question 9: Who coined the phrase, "The survival of the fittest"?

Question 10: Does a rusted nail weigh more or less than the original, non-rusted nail?

Question 11: Why does it get hotter in the summer? (In general terms.)

Question 12: If the average temperature of the earth increases due to global climate change, what will be the primary cause of rising sea levels?

Question 13: If a poor man can make one cigarette from six butts, how many can he make from 36 butts?

Question 14: Are there more words that begin with the letter "K" or that have "K" as their third letter?

Question 15: This is a two-part question and you will need a pencil, a single piece of paper and a timer:

Part 1) For 20 seconds, list all of the white things you can think of.

Part 2) The second part of the question will need to be answered once you get to Lesson 15.

Question 16: Which of the following characteristics has a higher correlation to the success of a Hollywood movie: the involvement of a famous movie star or the location(s) where the movie is shot?

Question 17: Which is greater: 1 or 2? What about 100 or 10,000?

Question 18: This is another question with two parts:

1) Does $50 always equal $50?

2) Which amount of money would you prefer to earn over a three-year period $110,000 or $150,000?

Question 19: Which is the more likely scenario?

A. Roger seemed happily married. He killed his wife.

B. Roger seemed happily married. He killed his wife because he wanted her inheritance.

Question 20: According to the latest research, IQ accounts for what portion of career success?

a. 50 to 60 percent

b. 25 to 49 percent

c. 23 to 34 percent

d. 11 to 22 percent

Question 21: How much of the earth is water?

Question 22: There is a small town that has only one street. The street runs in an east-west direction and is exactly one mile in length. The town council recently granted liquor licenses to two taverns with the proviso that the establishments be situated so that each town's inhabitants and the tavern owners experience maximum convenience. Where along the one-mile street should the establishments be located?

Question 23: In 2003, what money-losing product far exceeded its sales projections for the year in spite of the fact that the manufacturer made no material upgrades to the product and spent less money on advertising?

Question 24: Do more people die jaywalking or in the designated crosswalk?

Question 25: Imagine that the Roman numeral equation below is made out of ten toothpick sticks such that "I" equals one stick and the "X", "+" and "=" all represent two sticks:

XI + I = X

Fashion the correct answer by moving around as few sticks as possible. (Translated, the equation currently reads 11 + 1 = 10.)

Question 26: If you flip a coin 14 times, which scenario (A or B) is more likely to occur?

A. The coin will land on heads (H) 14 straight times:
H-H-H-H-H-H-H-H-H-H-H-H-H-H

Or

B. The coin will land with the random outcome of tails (T) and heads (H): T-T-H-T-H-H-H-T-T-H-T-H-T-T

Question 27: What do chameleons do?

Question 28: True or false: Hypnosis is useful in helping witnesses accurately recall the details of crimes.

Question 29: How many planets are there in our solar system?

Question 30: Consider these three words: eye, gown and basket. Can you think of another word that relates to all three?

Question 31: A yield sign has two colors. What are they?

Question 32: If five frogs are sitting on a log and four decide to jump off, how many are still sitting on the log?

Question 33: In both 1995 and 1996, David Justice of the Atlanta Braves had a higher batting average (1995: .253; 1996: .321) than the New York Yankees, Derek Jeter (1995: .250; 1996: .314). Who had the higher two-year average?

Question 34: On a pond, there is a single lily pad. Every day the number of lily pads doubles. If it takes 30 days for the lily pads to cover the entire pond, how long would it take for the patch to cover half of the pond?

Question 35: Estimate the odds of the following two events:

A. A large flood somewhere in America in which more than one thousand people die.

B. An earthquake in California causing large flooding, in which more than one thousand people die.

Question 36: Study the logo below. Do you notice anything unusual?

Question 37: You are in Las Vegas and are offered a $1 bet in which you have a 99.9 percent chance of winning $10 and a mere 0.1 percent chance of losing $11,000. Would you take the bet?

Question 38: (See Lesson 38) For fun, estimate the percentage of questions for which you provided the correct answer.

Question 39: Where is the universe expanding to?

Extra Credit: To demonstrate your understanding of exponential growth, estimate how tall a piece of paper would grow if it could be folded 50 times. (See the answer in Lesson 3.)

Lesson 1: Knowledge Can Kill— Unlearn or Die

"The most necessary part of learning is unlearning our errors." – Zeno

Question 1: Estimate the number of people, you expect to die in the United States from the following causes over the course of the following year:

A. Homicides _____ or Suicides _____
B. Floods _____ or Tuberculosis _____
C. Tornadoes _____ or Asthma _____

If you're like most people, you will rate the number of deaths from homicides, floods and tornadoes as being higher than suicides, tuberculosis and asthma, but this is wrong. In fact, the numbers for the latter have been consistently higher than each of the former since records have been kept.

The reason so many people get the answer wrong is because homicides, floods and tornadoes are more vivid and easier to recall. Unfortunately, what people recall often bears little or no correlation to the facts. The result is that people commonly expose themselves to greater risks for longer

periods of time; or alternatively, they worry about the wrong things—such as being whisked away by a flood or a tornado.

If you wish to bolster your odds of surviving in the future, unlearning could be critical, as the following story highlights.

In 1601, James Lancaster, an English sea captain, set sail from England to India. Overseeing a crew of 278 sailors on four separate ships, Lancaster conducted an experiment to evaluate the effectiveness of a treatment to prevent scurvy. He administered three tablespoons of lemon juice to the members of his ship and left the crews of the other three ships untreated—effectively creating a control group. Halfway through his journey, Lancaster's experiment yielded startling evidence: none of the sailors on his ship had died of the disease, but 110 of the sailors on the other ships—or 40 percent— had succumbed to the dreaded malady.With such clear and compelling evidence, one might have expected the British Navy to begin immediately administering lemon juice to sailors. It did not.

Nearly a century and a half later in 1747, James Lind, a British Navy physician who was familiar with Lancaster's work, carried out the first example of a scientifically controlled clinical nutrition study of the disease. He prescribed oranges and lemons to patients suffering from scurvy and found they were cured in a matter of days. Six years later in 1753, Lind published his seminal work, "A Treatise of the Scurvy."

Armed with this well-documented information, one might again have expected the British Navy to make haste in prescribing regular doses of

citrus fruits to all of its sailors. It did not. In fact, it took an additional forty-eight years for the disease to be eradicated.

Why did it take the British Navy almost two centuries to adopt a new, albeit simple, method for treating a disease that could have spared the lives of untold numbers of its sailors? A variety of factors were at work, but prominent officials and the sailors alike had different ideas for the best way to prevent scurvy, and these erroneous ideas prevented them from being receptive to new knowledge. In short, before they could fully assimilate the new information, they had to unlearn their old beliefs.

It is easy to dismiss the scurvy case as an isolated example from history and chalk it up to poor scientific knowledge, the slow diffusion of new information, bureaucratic inertia or just plain stupidity. Unfortunately, the British Navy isn't alone in its slowness to unlearn.

Consider the case of Australian physician Barry Marshall. In 1984, Marshall traveled to Brussels, Belgium, to a prestigious conference of ulcer specialists to present his research suggesting that ulcers were caused by bacteria. His presentation was greeted with laughter because the audience of ulcer experts judged the idea to be preposterous.

A year later, after drinking a vial of bacteria and giving himself an ulcer, Marshall returned with even more compelling evidence, but was shouted down with a chorus of boos by the group. It took the American Medical Association a full decade before it accepted Marshall's research and announced that the vast majority of ulcers are caused by bacteria and not by

stomach acids, stress or spicy foods as leading ulcer experts had erroneously believed. In 2005, Marshall and his researcher partner, Dr. Robin Warren, were awarded the Nobel Prize in medicine.

This begs the obvious question: Why were hundreds of thousands of ulcer patients treated with unnecessary, costly and often ineffective treatment for more than twenty years? The answer is because many people, including highly educated medical specialists, have a difficult time unlearning old knowledge.

It would be reassuring to think that society has progressed much since 1984 and that it won't repeat similar errors in the future, but it would be wise to remain humble. To demonstrate, I'd like to share a mildly shocking insight with you: Six times as many people died in their cars as a result of the terrorist attacks on September 11, 2001, as did those in the planes that crashed into the World Trade Towers, the Pentagon and in the rural farm field in Pennsylvania—combined.

Impossible, you say? Not if you change your frame of reference and consider that since September 11, 2001, millions of Americans have decided to forego flying and instead have chosen to drive to their destinations. In this light, the numbers become more plausible because, statistically speaking, driving is far more risky than flying. In fact, it has been estimated that since 9-11 more than 1,700 Americans have died in automobile accidents than otherwise would have if only those travelers had chosen the safer method of travel—flying.

Alas, before people can accept that airplanes are more likely to get them safely to their destination, they first need to unlearn that driving is safer than flying. This isn't an easy or even natural thing to do, but just as sucking on a lemon has saved and prolonged the lives of numerous sailors roaming the high seas, so too can unlearning prolong and maybe even save your life.

Homework Assignment 1: Research the following question: Which is the greater threat to a child's safety: your neighbor's swimming pool or the unlocked gun in his closet? (The answer will also be provided later in the book.)

Lesson 2: Don't Climb the Highest Mountain

"In some sense our ability to open the future will depend not on how well we learn anymore but how well we are able to unlearn."
– Alan Kay

Question 2: What is the world's tallest mountain?

Did you say Mount Everest? You're wrong. The answer is Mauna Kea and, as measured from its base to its summit, it is 33,465 feet high—or 4,436 feet taller than Mount Everest.

Mauna Kea's distinguishing characteristic is that three-fourths of the mountain lies under water. Mount Everest remains the *highest* mountain as measured from sea level to summit, but Mauna Kea is the *tallest* as measured from the bottom of its base to its top.

Both the question and the answer serve as a useful metaphor for the concept of unlearning, which I define as follows:

unlearn: v. [the act of unlearning; verbal n, to unlearn]

1. the act of releasing old knowledge

2. to see the world not as one would like to see it, but as it really is

3. to be un-uninformed

4. to acquire wisdom either by replacing old information that has been supplanted by new knowledge, or alternatively, by relinquishing known falsehoods

Unlearning is a critical skill, especially in today's world of rapid and accelerating change. To understand why, consider this: scientific and technical knowledge is now doubling every seven years.

This may sound a tad astounding until one considers that there are now 6 billion-plus people populating the globe and 90 percent of the scientists ever to roam the planet are alive at this very moment. Moreover, these scientists and their growing legions of students are adding new knowledge in fields as varied as biotechnology, chemistry, genomics, material science, nanotechnology, neuroscience, robotics, quantum physics and numerous other fields at a prodigious rate.

Aided in their quest, the world's researchers and entrepreneurs are now armed with a bevy of sophisticated new tools capable of doing everything from probing and plumbing subatomic particles deep inside the human body to visualizing the outer expanses of the universe. Further accelerating matters, these discoveries are now being enhanced with the aid of wickedly powerful supercomputers, and then shared with fellow researchers on the other side of the globe, via social networks and wireless

and fiber optic connections, in the proverbial blink of an eye.

One often overlooked implication of this growing tsunami of scientific knowledge is that as impressive as our knowledge base is today, it will represent only half of what society will know in just seven short years and a mere 25 percent in fourteen years.

To get a glimpse of the near future, it helps to go back in time, let's say fourteen years, and consider how the advances in just two fields (semiconductors and fiber optic bandwidth) have enabled the creation of the cell phone and Internet and how those devices, in turn, have transformed society.

If you think of future knowledge as an iceberg, the portion of the iceberg that lies above the water can be thought of as representing existing knowledge. The portion that resides below the water is the equivalent of future knowledge. And, just as the hidden part of Mauna Kea causes many people to overlook the fact that it is the tallest mountain in the world, future knowledge will also cause people to overlook obvious trends that will have an impact on their businesses.

Unless, that is, they are open to unlearning.

Unlearning, unfortunately, is neither a natural skill nor is it an easy one to acquire, and it is here that the metaphor of an iceberg is particularly apt. Imagine you are the captain of a ship entering waters conducive to the creation of icebergs. To survive it is important to beware not only of the presence of the growing number of icebergs, you must also understand that the greater threat is that portion of the icebergs that are submerged and can't be seen.

And just as a modest-size iceberg sank the "unsinkable" *Titanic*, the growing number of future "icebergs" (e.g, biotechnology, nanotechnology, robotics, the semantic web, RFID, quantum physics, etc.) will similarly take down the most "unsinkable" of industries. To avoid this fate, it'll be necessary to change course quickly and often, and unlearning is an essential skill every leader and organization must possess in order to safely navigate the future. Or, as Mark Twain once said about his time as a riverboat captain on the Mississippi River, "Two things seemed pretty apparent to me. One was in order to be a pilot a man had to learn more than any man ought to learn; and the other was that he must learn it all over again every twenty-four hours."

In between the old learning and the new learning, however, resides the often overlooked requirement of unlearning; but, just as the bulk of Mauna Kea or the majority of an iceberg can't be seen, it is necessary to be aware of its dimensions. Thus, one of the first tricks to unlearning is to simply acknowledge its existence as a vital component of the broader "mountain" of learning.

Homework Assignment 2: In 2001, Wikipedia was created by one man beginning with 100 entries. In its tenth full year (2011), more than 684 million people access 10 million different encyclopedia articles that were drafted by 75,000 individuals in 264 different languages. Describe how knowledge providers such as encyclopedia companies and teachers have had to unlearn as a result of Wikipedia.

Extra Credit: Describe how voice and speech recognition technologies, e-Books or social networking tools will require further unlearning in the future.

Lesson 3: Become Uncomfortable in Your Own Skin

"If they give you ruled paper,
write the other way."
— Juan Ramon Jimenez,
winner of the 1956 Nobel Prize for Literature

Question 3: Take a look at the picture below. What do you see?

Do you see an older woman or a younger woman? Most people see one or the other, but with some effort you can train your brain to see both images. In many ways, the journey of unlearning is comparable. This is to say that unlearning provides a different perspective on learning, but you must train your mind to view it as an equally legitimate educational outcome.

As with many journeys, it helps to begin with small steps. To get started, it may first be beneficial for you to become uncomfortable in your own skin. One effective strategy to remind you of the importance of unlearn-

ing is to develop a modest, easy-to-implement unlearning habit. In my case, whenever I think I may be in need of unlearning, I fold my hands the opposite way.

To demonstrate, clasp your hands as if you were in prayer. There are only two ways to do this. You can either place your left thumb and forefinger over your right thumb and forefinger or vice versa. Regardless of which way you do it, most people consistently do it the same way every time.

Now take a moment and fold your hands in the opposite manner. (Go ahead. I'll wait.) It feels different, doesn't it—almost unnatural? Of course, it isn't.

Unlearning can also feel unnatural in the beginning, but it is really just a different way of thinking about learning.

Therefore, whenever you feel you may be in need of unlearning I encourage you to fold your hands opposite your normal way—think of it as an exercise in becoming uncomfortable in your own skin. You may also choose to fold your arms the opposite way. Personally, I'm fond of this method because often when people are not open to an idea or another person's thinking or line of reasoning, they may defiantly fold their arms against their chests. By actively unfolding your arms and refolding them in an opposite manner this, too, can serve as a powerful physiological reminder of the importance of being open to unlearning.

In keeping with this spirit of folding, I'd like to highlight another unlearning folding exercise. How many times can you fold a piece of paper in half? Conventional wisdom holds that a strong person can do it only seven times, at which point the paper gets too thick to fold.

In January 2002, Britney Gallivan, in an attempt to solve an extra-credit problem for her high school math class, became the first person in the world to fold a piece of paper nine times. For good measure she then went on to fold it a tenth, eleventh and twelfth time.

Gallivan did so by questioning everything. First, she began by using ultra-thin toilet paper. Next, she used a very long strip of paper (about the length of six city blocks) and lastly, she didn't limit herself to folding the paper precisely in half after every fold. Instead, she sometimes folded the paper in different lengths and directions. A more detailed explanation can be found in her book, *How to Fold Paper in Half Twelve Times: An "Impossible" Challenge Solved and Explained.*

In this same way, unlearning also requires us to fold old problems in new, different and innovative ways. One good way to remind you of this is to create opportunities to become uncomfortable in your own skin and fold your hands and arms differently on occasion.

Homework Assignment 3: Think of a problem that has been vexing you for some time. Challenge three basic or underlying assumptions about that problem and then develop new tools or approaches to tackle the problem.

Extra Credit: To demonstrate your understanding of exponential growth, estimate how tall a piece of paper would grow if it could be folded 50 times.

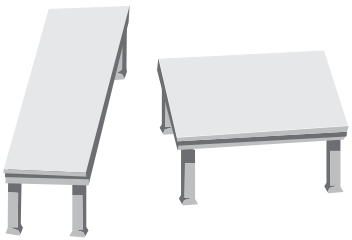
Answer: Approximately 100 million kilometers – or 62 million miles

Lesson 4: Argue with Yourself (It's Not Debatable)

"I have what I call an iron prescription that helps me keep sane when I naturally drift toward preferring one ideology over another and that is: I say that I'm not entitled to have an opinion on this subject unless I can state the argument against my position better than the people who support it. I think only when I've reached that state am I qualified to speak."

— Charlie Munger

Question 4: If you had to select one of these two tables to fit into a long, narrow space, which would you select?



Did you say the table on the left? If so, you are correct. If, however, you opted for the other table, you are also correct. Why? Because both tables have the exact same dimensions. Don't believe me? Measure the width and the length of the two tables.

The optical illusion and the above quotation from Charlie Munger (Warren Buffett's right-hand man for more than 40 years) offer both visual evidence and worldly advice for anyone wishing to stay open to the importance of unlearning. They also serve as useful reminders that it is important to consider all sides of something–be it a table or an issue.

Munger's practice of arguing opposite sides of a question is a practice dating back thousands of years. As Nassim Taleb recounts in his book, *Fooled by Randomness*, in 155 BC the Greek philosopher Carnaedes traveled to Rome to argue against a penalty that had been levied upon the Athenians. With unmatched eloquence, Carnaedes sang the praises of Roman justice and convinced his audience of the merits of his position. Alas, that wasn't the point he was trying to make. The very next day Carnaedes dissected his previous arguments and proceeded to convince the same audience the opposite was true.

So where did Carnaedes really stand on the issue of the penalty? We don't know. But that doesn't matter because what he wanted to advocate was a doctrine of "uncertainty of knowledge." Carnaedes was a "radical skeptic" and believed that all knowledge is impossible to know–except for the knowledge that all knowledge is impossible to know. Or, as Taleb writes, "Carnaedes stood all his life against arrogant dogma and belief in one sole truth."

This philosophy calls to mind a quotation from F. Scott Fitzgerald "The test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function."

This ability to deal with ambiguity is not a luxury reserved only for an-

cient philosophers and poets. In 1988, a study by the American Management Association found the leadership characteristic most essential for steering organizations through troubled and complex times was "the ability to deal with ambiguity."

One strategy for preparing to deal with such ambiguity is (like Munger and Carnaedes) to familiarize oneself with all sides of an issue. In this way, whenever new—and perhaps contradictory—information becomes available, the holder of the opinion can assimilate this new information into their decision-making process. This, in turn, may make it easier to unlearn a position, in spite of having voiced support for it in the past, because you have at least acknowledged the merits of the opposite side of the issue.

Why might this be so? Because the previous work in understanding the opposing viewpoints will have created the space for a different but equally plausible idea—or even a table—to fit.

Homework Assignment 4: List all of the reasons why your competitors' products or services are superior to your own, and why its revenue growth, profits and stock performance may outperform your own over the next three years. For individuals, identify your favorite stock and list all the reasons it may underperform in the broader S&P index in the coming years.

Lesson 5: Do Not Feed Creatures of Habit

"Not choice, but habit,
rules the unreflecting herd."
— William Wordsworth

Question 5: On a game show, you are given the option of choosing a gift behind one of three doors. Behind one door is a new car; behind the other two are goats. After you have made your selection, the game host (who knows what's behind each door) opens one of the doors to reveal a goat, and then gives you the option of switching your selection. Is it in your best interest to do so?

If you're like most people, you won't change because you believe you still have a one-out-of-three (33.33%) chance of having made the right decision. The statistically smart thing to do is to accept the host's offer and switch your vote. In fact, this act doubles your probability of winning from 33.33% to 66.67%.

This result is so counterintuitive that when this question and its answer were presented in a *Parade* magazine article in 1990, some 10,000 readers, including nearly 1,000 PhDs, responded afterward that the pro-

posed solution (switching) was wrong. Alas, it was they who were wrong. (For a more detailed explanation of the statistics behind the solution, visit Wikipedia.org/wiki/Monty_Hall_Problem).

The choice of whether you choose to unlearn or not is, of course, your own. But if you feel the act won't confer a distinct advantage on you or your organization, you may want to consider just a small sampling of findings that, like the above problem, may challenge your intuition:

- In the long run, not listening to your best customers could be a wiser strategy than catering to their every whim.
- Taking more risks, embracing failure and practicing imperfection can produce better results than the relentless pursuit of perfection.
- The collective opinion of a random group of independent individuals will, more often than not, be superior to the opinion of an expert.
- For the health of your organization, older workers should be encouraged to seek out younger and more inexperienced colleagues as mentors rather than vice versa.
- Under-scheduling your day, turning off your cell phone, taking more naps and going on more vacations can bolster productivity.
- The interview question most likely to be indicative of long-term employee success has nothing to do with a person's educational background or past experience.
- Using money as a financial incentive to bolster employee productivity can be counterproductive and lead to disastrous results.

- Telling an employee (or a child) that he or she is smart can hinder creativity and problem-solving skills.
- Acknowledging what you and your company *don't know* is far more important than what you do know.

It's perfectly understandable if you find yourself resisting many of these findings. As I said, the choice to unlearn or not is yours alone. You are entitled to your opinions. If, though, you do get in the habit of feeding your curiosity and not your habits of thought, I can guarantee you—statistically speaking—your odds of future success will be much improved.

Homework Assignment 5: Regardless of which leg you normally put in first when putting on your pants, try placing the opposite leg in first. The exercise will feel odd in the beginning, and it may even be difficult for some people, but stick with it for an entire week. If you do, your balance will improve. Afterward, on occasion, use the exercise as a tangible reminder that in order to lead a well-balanced life, it's in your best interest to starve some of your creatures of habit on occasion.

Lesson 6: Study at an Anti-Library

"There is a huge difference between what people actually know and how much they think they know."
— Nassim Taleb

Question 6: Which of these animals is more likely to kill you: a shark or a deer?

The right answer is the deer. In fact, the contest isn't even close. You are 300 times more likely to be killed at the hands—or the "hoof," if you will—of a deer than a shark. The reason a vast majority of people answer this question incorrectly is because shark attacks, although quite rare, are easy to imagine and vividly recalled. For example, it is not uncommon for television news stories to report shark attacks even when those attacks occur thousands of miles away. And, if you are over the age of forty, you may viscerally recall the movie *Jaws*. On the other hand, instances of drivers striking deer on remote country roads and dying in the resulting collision are much more common. They occur with such startling regularity that they rarely warrant more than a passing mention on the local news.

The discrepancy between the relative danger of sharks and deer is a poignant reminder of that old adage: What we don't know is more important than what we do know. One of the better ways to remind ourselves of our ignorance—and to remain open to the concept of unlearning—is to keep our ignorance top of mind. One of the more effective strategies for doing this is to create an anti-library. As Nassim Taleb recounts in his provocative and insightful book *The Black Swan,* an anti-library is a collection of books that one *hasn't* read.

Unlike a shelf or bookcase filled with previously read books, an anti-library serves as a tangible reminder of all unread books—books that may contain valuable information or insights—that a person hasn't yet had the opportunity to access. With an estimated 3,000 new books being published daily and the rate of scientific knowledge purported to be doubling every seven years, it is safe to assume that there is a growing body of knowledge that is relevant to you and your business but of which you remain blissfully unaware.

It is also impossible to know everything. Therefore, the best one can do in such a deplorable situation is to use the awareness of this ignorance as a method for staying intellectually humble. By extension, a person is more likely to remain open to the necessity of unlearning if they occasionally remind themselves of what they don't know.

Of course, you are free to ignore this advice, but remember this: What you don't know can kill you—almost as easily as a deer.

Homework Assignment 6: If your financial situation permits, start creating an anti-library. Alternatively, using an online tool such as Shelfari, begin compiling a list of books that may contain useful knowledge that you don't or won't have the time to read. Add a minimum of one book a week for a year to your anti-library.

Lesson 7: Question the Wisdom of Experts

"I can't understand why people are frightened of new ideas. I'm frightened of the old ones."
— John Cage

Question 7: Write the letter "E" on your forehead. (Go ahead, I'll wait. You may also just trace the letter on your forehead if that's more comfortable for you). Did you write the letter in a self-oriented fashion such that it would appear backward to those viewing it, or did you write it backward so that it would appear legible to others?

In a fascinating study conducted by Adam Galinsky of Northwestern University's Kellogg School of Management, Galinsky and his colleagues found that the more power an individual possessed, the more likely the person was to draw the letter from their perspective, making it appear backward to others. In fact, individuals assigned to a high-power group were three times more likely to draw a self-oriented "E."

The study concluded that power causes individuals to assign too much weight to *their* own viewpoint and makes them less capable of adjusting

to, or even considering, another person's perspective.

This finding is worth keeping in mind when listening to any expert who discusses a new idea. For instance, in 1899, Lord Kelvin, then recognized as one of the brightest individuals in the world, dismissed the work of aviation enthusiasts by saying, "Heavier-than-air machines are impossible." A mere four years later, Kelvin was forced to eat his words when two bicycle repairmen from Dayton, Ohio—Orville and Wilbur Wright—struck out from the sandy dunes of Kitty Hawk, North Carolina, and achieved flight.

In the mid-1980s, a conference full of ulcer experts ridiculed the work of Barry Marshall when he proposed that ulcers were not caused by acid or spicy food (as ulcer experts assumed at the time) but rather were caused by bacteria. It took ten years but eventually the American Medical Association (AMA) agreed and, in 2005, a full two decades after he first proposed his theory, Marshall and his colleague, Robin Warren, were awarded the Nobel Prize in Medicine.

That experts should be threatened by new ideas is to be expected. After all, it is difficult to accept the notion that years of well-intentioned study, research and effort were misplaced. It is equally problematic to accept that the foundation of one's power (one's status and standing in the eyes of society) was based on a flawed premise.

What is even more troublesome is that rather than keeping an open mind and entertaining new ideas, which may challenge one's expertise,

many experts do just the opposite and perform the equivalent of writing a backward "E" on their forehead and refuse to consider new alternatives. Often, they'll even go a step further and use their status as experts to ridicule and belittle the new idea in question.

The problem is further compounded because experts are often extremely intelligent and are able to lay out in articulate and plausible sounding—but, ultimately wrong—arguments as to why the new ideas should be dismissed.

New ideas, by their very nature, challenge old ideas. It is dangerous, therefore, to cede sole control of the assessment of new ideas to the very group that would be most threatened by the adoption of these ideas.

It is, of course, entirely reasonable that experts be allowed a role in assessing new ideas. But before anyone accepts their word as "gospel," they should insist that the experts take a moment and write the first letter of "expert" backward (instead of in a self-oriented way) as a reminder that expertise doesn't necessarily equal correctness and that they must stay open to new perspectives.

Homework Assignment 7: In 1933, what brilliant scientist uttered this famous quotation: "There is not the slightest indication that nuclear energy will ever be obtainable"? Hint: His name began with "E" and he later publicly reversed his position in a letter to President Franklin D. Roosevelt.

Extra Credit: After the near meltdown of the global financial market in 2008–2009, what other group of experts might have benefited from entertaining a new perspective?

Lesson 8: Bite the Hand That Feeds You

"The mastery of transformation is the process of unlearning what you have already learned."
— Unknown

Question 8: In hospitals, what action is estimated to reduce the risk of infection from catheters by as much as 90 percent?

The answer may surprise you: systematic hand washing. That's right—if more health care professionals (the very people charged with healing you) would simply scrub their hands more diligently, countless numbers of preventable infections would be averted, an estimated 25,000 lives would be saved and billions of dollars in unnecessary health care costs could be avoided.

The fact that hand washing saves lives is nothing new in the health care system. More than a century and a half ago, Ignaz Semmelweis discovered that if doctors would wash their hands and sterilize their equipment prior to performing childbirth, the mortality rate among women would also plummet. So how long did it take doctors to adopt Semmelweis's simple, life-saving technique? Almost twenty years.

It would be comforting to think of this painfully slow transition as a historical anomaly, but it has been estimated that it still takes seventeen years, on average, before a health care-related "best practice" will be adopted by a majority of medical professionals.

Getting otherwise intelligent and well-intentioned people to change habits can be hard. This is especially so when these folks are considered experts in their field. One way to challenge this arrogant behavior (and avoid it yourself) is to "bite the hand that feeds you" and constantly challenge your best practices and ideas.

One rule to help get you started on this path is this: It is OK to be in love with *what* you do but not with *how* you do it.

For example, in the 2000s, IBM was quick to adopt open-source software because it wasn't "in love" with how software was provided. The same couldn't be said for Microsoft, which stubbornly resisted the transition for a longer period of time. Netflix has similarly avoided falling in love with how movies are delivered to consumers. Today, less than a decade after disrupting the movie rental market by mailing DVDs, it is now streaming videos via the Internet. Amazon is doing much the same by embracing cloud computing and electronic books. This company understands it is not in the business of distributing physical books but rather distributing digital content.

Even Tiger Woods, one of the greatest golfers to play the game, makes it a habit to regularly revisit everything from his swing to his grip. Fa-

mously, after winning an unprecedented six consecutive tournaments, Woods announced to the world that his swing "sucked." He then proceeded to retool virtually every aspect of his game in order to ascend to an even higher level.

Woods and other companies that systematically attack their successes do so because they have embraced the wisdom of the late management guru Peter Ducker, who once said, "Every organization has to prepare for the abandonment of everything it does."

Rarely will you be handed the next great opportunity in life. More likely, you are going to have to grab it, but this won't always be possible if your hands are still filled with yesterday's bounty. So go ahead and bite the hand that feeds you—it may just free you to grab the next rung on the ladder of success.

Homework Assignment 8: Create an anti-resume: Make a list of skills or knowledge you and/or your company *don't* possess. If you had any of these skills or knowledge might it change how you do your business? If so, is it worth it to stop honing your current strengths and instead start developing some new skills?

Extra Credit: Research how Bethlehem Steel went from being named *BusinessWeek*'s "best managed company" in 1989 to bankruptcy by 2001. Next, explain how the company might have avoided its fate of having the Smithsonian Institute purchase its once impressive steel manufacturing plant for the purpose of converting it into the National Museum of Industrial History if it had had the courage to "bite the hand that fed it".

Lesson 9: Unlock the Keys to Failure

"To kill an error is as good a service, and sometimes even better than, the establishing of a new truth or fact."
— Charles Darwin

Question 9: Who coined the phrase, "The survival of the fittest"?

Did you say Charles Darwin? If so, you are mistaken. The honor belongs to Herbert Spencer, who first used the phrase in his book *The Principles of Biology* in 1864. To be fair, Spencer's book was inspired by Darwin's theory of evolution and Darwin himself later acknowledged that the phrase might be both more convenient and accurate than his own term, "natural selection." Nevertheless, Spencer, and not Darwin, deserves credit for coining the popular phrase.

It is worth noting at this juncture that Darwin's paradigm-shattering book was only written because he had the temerity to ignore the advice of a well-intentioned but, ultimately, misguided editor who, after reading the first chapter of Darwin's treatise, urged him to write a book on, of all things, pigeons.

Darwin's *On the Origin of Species* went on to become an immediate best seller and, arguably, the most influential book of the nineteenth and twentieth centuries. It is further worth reflecting on the courage Darwin displayed in publishing the book. As another British intellectual, John Maynard Keynes, once observed, "Worldly wisdom teaches that it is better for the reputation to fail conventionally than to succeed unconventionally." Darwin could have easily chosen to "fail conventionally" by writing a book on pigeons; and yet, in spite of the scorn and ridicule he knew would be heaped upon him, he chose to publish his intellectually challenging theory anyway.

The reason was because Darwin was a scientist and he understood that science could only progress if ideas were put to the rigorous test of other scientists. In this sense, Darwin understood that risking failure was integral to long-term success. Outside the field of science, this important lesson is rarely taught and even less frequently encouraged. This is unfortunate and the notion that failure only has negative attributes is a belief worth unlearning if people and organizations wish to achieve future success.

By embracing the positive attributes of failure, individuals can free themselves from the fear of failure. Once so relieved, individuals are more willing to confront and overcome the inhibitions of presenting society with unconventional ideas and products. Or, as one sage once said, "If you are not prepared to be wrong, you will never end up with anything original."

One of the benefits of embracing failure is that often in the marketplace of ideas and products, the market doesn't even know what it wants until after someone has showed them something completely original—a sentiment neatly captured in Henry Ford's famous quip, "If I had asked people what they wanted, they would have said faster horses." Luckily, Ford, like Darwin and countless other iconoclasts and innovators, chose to succeed unconventionally, and you can, too—but only if you first have the courage to unlock the keys to failure and venture forth with your bold, controversial and far-out ideas.

Homework Assignment 9: Look up the definition of the word "theory" and see if the definition—as used in a scientific sense—corresponds with your understanding of the term. (Hint: A theory is distinct from a hypothesis and it doesn't mean "an idea that isn't certain.") Next, explain how many of the best scientific theories are often the product of multiple failures.

Extra Credit: Explain how the concept of unlearning may be vital to your own evolution and, thus, long-term success.

Lesson 10:
See What Isn't There

"You don't understand something until you understand it more than one way."
— Marvin Minsky

Question 10: Does a rusted nail weight more or less than the original, non-rusted nail?

It weights more. This finding, discovered by Antoine and Marie Lavoisier in the late eighteenth century, was rather startling because it drew attention to the unobservable notion that a rusting object was somehow drawing the attraction of an element that people could not see. In this case an iron nail is attracting oxygen molecules and converting the metal into iron oxide.

This idea of "not seeing" what is there is an important element of unlearning. Consider the case of Abraham Wald. During World War II, Wald and a team of researchers were charged with protecting Allied bombers from German anti-aircraft guns. As part of their work the researchers diligently recorded where on the body of the plane each returning bomber was struck by gunfire. The most common areas were the wings and the tails.

In response, the researchers advised the military command to reinforce those bullet-struck areas. Everyone, that is, except Wald, who suggested that those areas of the plane *not* struck by gunfire—largely the fuselage—be reinforced. His recommendation was met with incredulity by his peers and superiors.

Eventually, Wald convinced them of the wisdom of his logic. The mistake his peers made was that they were observing only those planes that returned *safely*. What they were not seeing were those planes that didn't return. Wald reasoned correctly that if a plane could safely return with bullet-ridden wings and tailfins, then those areas didn't need reinforcement and, counterintuitively, the parts of the plane without bullet holes were the areas requiring additional armor.

Similar situations occur every day. Millions of people play the lottery because they see photos of smiling winners holding humongous checks in the newspaper or on TV. What they don't see are the millions of losers who consistently drop one dollar, or five dollars or more, to play the game every day.

Academic and corporate research often falls prey to a similar prejudice. For example, in the wake of the horrific 1999 Columbine High School massacre in which twelve students were gunned down, scores of academic researchers received grants to study student aggression. Their conclusion was that aggression leads to bad behavior and that bad behavior is uniformly associated with negative consequences.

One problem with these findings was that the vast majority of these researchers were only looking for negative consequences. Subsequent researchers have now discovered that aggression can also have positive consequences. Many people—but especially teenagers—perceive aggression as a "cool" trait and reward those individuals who exhibit it with popularity. (Interestingly, according to recent research, popular kids are more likely to abuse alcohol and drugs and, therefore, have a different but no less serious set of problems than the "quiet, loner type.")

What is the moral of the story? Just as a tetanus shot can help prevent an infection from a rusty nail, unlearning can help inoculate you against other rare and difficult-to-see threats.

Homework Assignment 10: Some parents don't allow their children to walk home from school or down to a friend's house and, instead, drive them because they are concerned that their child could be kidnapped or otherwise harmed by a stranger. What aren't the parents seeing? (Hint: Think obesity and diabetes.)

Lesson 11: If It Goes Without Saying, Question It

"We only hear those questions for which we are in a position to find answers."
— Friedrich Nietzsche

Question 11: Why does it get hotter in the summer?

In the late 1980s, for the production of a movie entitled *A Private Universe*, the filmmakers posited this question to twenty-three graduating seniors of Harvard University. Twenty-one of the twenty-three students provided incorrect answers. The overwhelming majority responded with something to the effect that it's because the earth draws closer to the sun.

Intuitively, this answer makes sense—after all, if you step closer to a fire you get warmer—but it's wrong. The reason it gets hotter is because the tilt of the earth's axis changes and exposes those areas of the world experiencing summer to more direct and sustained sunlight.

It may be comforting to believe this shockingly high degree of ignorance is limited to Harvard Yard, but many people respond with a similar answer. What is ironic is that most students are taught this basic lesson of

astronomy in grade school and yet, such is the power of embracing intuition that this fact is overridden as we grow older. (Perhaps you could say this fact is "unlearned" in a negative way.)

The problem of relying on our intuition has, unfortunately, been compounded in recent years due to the popularity of Malcolm Gladwell's book *Blink: The Power of Thinking Without Thinking,* which encourages people to rely more—and not less—on their intuition.

Of course, intuition is a powerful idea and it has its place. But should people really "think without thinking"? Let me ask another simple question and trust your answer to intuition: When you look at a wooden table, where does the material from the tree that makes the wood come from? More succinctly, from what does a tree derive the majority of material from which it is made?

Did you say the ground and dirt? Perhaps you said water. Some material comes from these sources, but the vast majority—approximately 85 percent—comes from the air. Trees process carbon dioxide (in the air) and convert it into stored carbon—or wood.

Was your intuition correct?

Now allow me to ask a few more questions: What does your intuition tell you about the relative danger of driving while talking on a cellphone versus speaking on a hands-free device? If you are a parent, what is more dangerous to your child: a neighbor with a gun in his house or one with a

swimming pool? And speaking of swimming, do you think you could easily recognize when someone is drowning?

In each case, the truth might surprise you. According to research, using a hands-free phone is no safer than using a regular cellphone. A child is fifty times—fifty times!—more likely to die in a neighbor's swimming pool than at the hand of their gun, and many drownings occur directly in front of people for the simple reason that unlike in the movies, victims don't flail, make splashing noises or even cry out for help. In fact, for physiological reasons, none of the acts commonly associated with drowning are likely to occur. For example, a drowning person doesn't wave or flail her arms. Instead, the arms are typically pressed flat against the water in a desperate attempt to keep the head above water. And if the person is fortunate enough to achieve this goal, her first act will be to breathe—and not cry out for help—because that is what the respiratory system was designed to do.

These surprising findings beg the obvious question: Where else might your intuition be leading you astray? For example, what does your intuition tell you your best skills are? What is your core business or what are your key competitors? How do you rely on it to select key employees?

What if your intuition is wrong about these things?

To avoid getting burned, the best strategy is just to ask this simple question: What if I'm wrong? And if you don't think you need to answer this question because the answer goes without saying, then definitely question it.

Homework Assignment 11: Around whom does your world revolve? Your spouse or partner? Your parents? Your children or grandchildren? Perhaps it's your friends, employees or even your customers? Do they know this? Do they really? When was the last time you actually told the most important people in your life how much they mean to you? You may assume this knowledge goes without saying, but what if they don't know how you feel? For your homework, tell them.

Lesson 12: Think Small

"If we are to achieve results never before accomplished, we must employ methods never before attempted."
— Sir Francis Bacon

Question 12: If the average temperature of the earth increases due to global climate change, what will be the primary cause of rising sea levels?

Did you say melting ice caps and glaciers? Wrong. While it's true the water from these sources will contribute to the problem, the primary cause of rising sea levels will be the thermal expansion of ocean water.

This problem of misidentifying the root cause of a problem can manifest itself in an equally problematic behavior worthy of unlearning: the idea that big problems always require big fixes.

It would be easy to begin this lesson with the famous story of how NASA engineers spent a million dollars to design a pen that worked in the zero-gravity conditions of outer space (when a humble pencil would have sufficed). Or to retell the story of the young boy who, upon watching a group of firemen and engineers struggle to free a large truck that had

lodged itself under a bridge, proposed that they begin by deflating the tires of the truck. Alas, both stories are urban legends.

Nevertheless, these anecdotes have gained a near mythical status in today's contemporary society because of their strong emotional appeal. Many people suspect a large number of solutions are "over thought" and "over engineered."

What is not an urban myth is the fact that Ignaz Semmelweis helped save the lives of hundreds of thousands of women by getting doctors to engage in the simple act of washing their hands prior to assisting in the delivery of a newborn child. (Unfortunately, it took the medical community nearly two decades to unlearn their unhealthy habits and, even today, health care professionals still aren't scrubbing their hands often enough.)

In the field of agriculture, it was the simple addition of ammonium nitrate (a cheap but effective crop fertilizer) that allowed the world's farmers to feed a billion more people using the same amount of land, and it was the installation of the seat belt that saved the lives of thousands of motorists. This occurred in spite of the fact that the device was initially ridiculed as "inconvenient, costly and just a bunch of damn nonsense" by auto executives.

As implausible as it may sound, the problem of hurricanes may also require only a simple fix. As Steven Levitt and Stephen Dubner outline in their book *Super Freakonomics*, it may soon be possible to prevent hurricanes (which, since 2005, have inflicted more than $150 billion in dam-

age on the U.S. economy) by deploying a few thousand "hydraulic heads" to help keep the ocean water cool in those areas where hurricanes begin. The estimated cost: $1 billion.

On the bigger problem of climate change, Levitt and Dubner also explain how "Budyko's Blanket" (a massive chimney-like structure) may pump sulfur dioxide into the atmosphere and could theoretically cool the planet for a mere $250 million.

Now, to be fair, both "hydraulic heads" and "Budyko's Blanket" may not work. But, the broader point is that when faced with big problems there is absolutely no reason why we must first look to "big answers"—such as moving the entire city of New Orleans or requiring every citizen in the world to modify his or her behavior and consume only products that use no fossil fuels or emit little carbon dioxide—as the solution. Often, big problems can be solved with small, easy-to-implement solutions—and that's no myth.

Homework Assignment 12: Identify your company or organization's largest problem. Break into two groups and have one group brainstorm solutions that cost no money while the second group considers only inexpensive solutions. Have the two groups come back together and share their ideas. Repeat the brainstorming session with everyone in the room.

Extra Credit: Post your call for solutions to a broader community on the Internet. If necessary, offer a modest prize for the best practical solutions.

Lesson 13: Practice Intentional Imperfection

"Perfecting oneself is as much unlearning as it is learning."
— Dijikstra

Question 13: If a poor man can make one cigarette from six butts, how many can he make from 36 butts?

Seven. He makes six cigarettes, smokes them, and uses the six new butts to make a seventh cigarette.

In the rush to calculate the answer, it is easy to overlook the creation of seventh cigarette. In this same way, it is easy to overlook how quantity can have a quality all its own. In an often told story, a ceramics teacher once asked half her class to concentrate on producing as many cups as possible. To the other half, she instructed them to focus on quality. At the end of the class, which half of the class do you think produced the higher quality cup? It was the half that focused on quantity.

The reason is because the "quantity" group learned from their mistakes and continually improved while the quality group theorized about

perfection, fretted over the smallest of details and chose not to take any imaginative risks for fear of failure.

As society continues to become more saturated with information and the means by which to share this information (e.g., smartphones, social networks, instant messaging, email, etc.), it is easy to fall into the trap of "analysis paralysis." All too often, people and organizations put off making decisions because they are under the illusion that additional information will lead to a better decision and thus, a better and higher quality product. This is not true and it's a habit or belief that needs to be unlearned.

In a study, a group of experts was once asked to rate five jellies (jams) according to taste. Their rankings corresponded closely to the most popular consumer brands. When they were asked to rate the jellies on a variety of characteristics including aroma, texture and spreadability, however, they ranked less popular brands higher because they assigned more value to characteristics, such as spreadability, which were not really that important to the end customer. In this case, the input of additional information led to a poor decision.

In an era where it's easy to communicate with colleagues halfway around the world and gain their input, it is possible certain people will provide keen and useful insights. But it is also just as plausible they will raise questions, concerns, barriers and obstacles that serve no useful purpose. (For example, if your job is to focus on making a jelly that can be easily spread, it is only natural to want to delay the release of a new jelly

until it is perfectly spreadable—even if that trait isn't critical to the product's ultimate success.)

To circumvent this conflict, it is worth unlearning perfection and to embrace instead the habit of practicing imperfection. To better understand this concept, consider the practice of Persian rug weavers who intentionally include imperfections in their rugs. Their purpose is twofold. First, this habit keeps the weavers humble and reminds them that while true perfection can be pursued it can rarely be attained. Second, this habit makes it easier for them to ship a product to market because they don't needlessly worry about creating the perfect product. As a result, they end up producing more rugs and getting progressively better with each one they create.

Amish quilt makers and Navajo artisans employ similar policies with regard to their wares, but an old Persian proverb best captures the essence of practicing imperfection: "A Persian rug is perfectly imperfect, and precisely imprecise."

The best way to get better is to stop worrying about perfection and, counterintuitively, begin practicing imperfection, because it will actually get you closer to the goal of perfection.

Homework Assignment 13: Find an area in your life where you would like to be more productive. For instance, perhaps you'd like to write more, produce more art or music, or start a new habit or hobby. Next, begin practicing imperfection.

Lesson 14: The Grass Isn't Greener on the Other Side

"He who hesitates because he feels inferior is being surpassed by those who are busy making mistakes and becoming superior."
— Henry Link

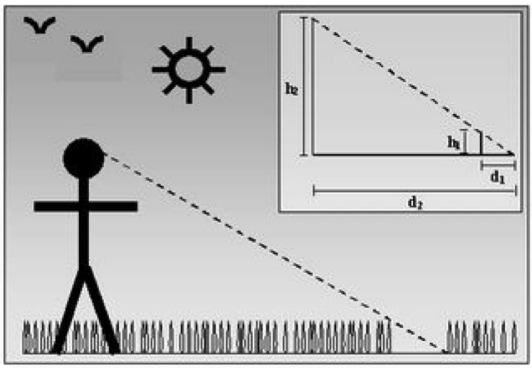
Question 14: Are there more words that begin with the letter "K" or that have "K" as their third letter?

With words such as kangaroo, kitchen and kite readily springing to mind it is easy to assume there are more words beginning with the letter. This is incorrect. Surprisingly, there are three times as many words with "K" as their third letter. The reason many people get the answer wrong is because it's relatively easy to think of words beginning with K. It is far harder to conjure up words such as acknowledge, irksome, unknown and wake.

In this same way, it is easy to understand our own situation because it is always top of mind and far more difficult to understand the plight of others

because the context of their life is not so clear. This bias is one reason why the grass often appears greener on the other side of the fence.

In fact, there is a scientific explanation for the "greener grass" phenomenon. From a person's viewpoint atop a patch of grass it is easy to notice the bare spots—just look down. When the grass is farther off, a person's viewpoint will impose a slant on the grass and their angle will only enable them to observe the tops of the blades of grass. (See image.) The result is that bare spots remain obscured from their line of sight and they only see the tops of green blades of grass. Only as they draw nearer do the ugly blotches and bare spots become noticeable.



The same is true with other aspects of our lives. Obviously, a person has an up-close view of the "bare spots" in his or her life—be it a lower balance in the checking account, mounting credit card debt, an aching back, family issues or any number of things. The view of a neighbor's life—one who has a larger house, newer car or perhaps a happier family—is more difficult to discern. Like spotting words with "K" as their third letter, it is trickier to assess other people's "bare spots"—be they in the form of internal house repairs, larger car payments or well-concealed dysfunctional family issues.

The problem runs deeper than misplaced envy. Many times people will feel as though their patch of grass is cursed. For example, have you ever noticed how the line you are standing in at the grocery store is always the slowest moving? If you feel this way there is good news. You aren't cursed. You simply notice such instances more often.

If you think about this for a moment, this makes sense. Because you are waiting and since you have little else to do, it's easy to concentrate on those who don't share your plight (i.e., the people in the quicker-moving lanes). On the other hand, when you are briskly moving along you are less likely to consider your good fortune. Instead you just move ahead—oblivious to the envious glances of those poor souls in the slower-moving lines.

All of this is not to deny that there are bald spots on your grass and that sometimes you have chosen the slow lane. The challenge, in such situations, is to view your situation from a new perspective.

Over the past few years a number of companies have done exactly this. For instance, when Yellowtail, an Australian wine company, recognized that many people were foregoing wine purchases because they were intimidated by their lack of knowledge in selecting a nice wine, they created and marketed a low-cost quality wine. This took the apprehension out of buying wine for many people who had previously never purchased wine because of the expense, and sales skyrocketed. In essence, they converted a "bare spot" into a lush green pasture of opportunity.

By unlearning the idea that the grass is always greener on the other side

you will stop chasing an illusion. The extra time you save can then be used toward making the grass upon which you are standing greener.

Homework Assignment 14: Next time you find yourself standing in a slow-moving line at the grocery, take the opportunity to gain a new perspective on your life by making a list of the things that are going well in your life or, alternatively, try studying a "bare spot" in your business or life from a different angle and figure out how to make it greener.

Lesson 15:
Cast a Narrow Net

"It's what you learn after you know
it all that counts."
— John Wooden

Question 15: This is a two-part question and you will need a pencil, a single piece of paper and a timer:

Part 1) For 20 seconds, list all of the white things you can think of. (Read no further and make the list.)

Part 2) Next, on the opposite side of the paper, in 20 seconds make a list of all the white items inside of a refrigerator.

Surprisingly, most people can record just as many items on the second list—even though the universe from which they can select is decidedly smaller. Some people, in fact, find the second part of the question easier to answer.

How can this be? How can people get just as many—or more—ideas from a smaller sample? Aren't we always encouraged to cast a wide net?

Casting a wide net is, of course, often an effective strategy. This is especially true if time isn't an issue (as it was in this exercise) because a wider net will usually yield a higher number and quality of ideas—but not always.

The key to understanding this paradox resides in understanding the issue of concreteness, which is defined here as focusing a person's attention on a specific task.

This paradox is appropriate when considering the idea of a mentor. Over time many people have come to think of mentors as individuals possessing more knowledge and experience than they have themselves. It is natural, therefore, to seek out mentors with these attributes.

In order to unlearn, though, I encourage you to seek out a reverse mentor—a person younger or more inexperienced than you. For starters, such individuals are likely to possess some knowledge you don't. More important, in today's era of accelerating change, it is not always the quantity or quality of knowledge that is most important, but rather the ability to bring a fresh perspective to an existing base of knowledge.

By providing uncommon insights on what may be coming next or exposing individuals and organizations to a new way of seeing an old problem, a reverse mentor can be just as valuable as an "experienced" mentor.

Like thinking of white things in the refrigerator, the life experiences of reverse mentors may be more limited, but by identifying overlooked

opportunities or spotting future threats to your business, they just may make sure you don't end up with egg (white) on your face or crying over spilled milk.

Homework Assignment 15: Identify at least two potential reverse mentors—one within your field of expertise or industry and one outside—who are either younger or more inexperienced than you. Meet quarterly with these individuals and spend the majority of the time listening—not talking.

Lesson 16: Bet Against Yourself

"Don't wanna learn from nobody
what I gotta unlearn."
– Bob Dylan

Question 16: Which of the following characteristics has a higher correlation to the success of a Hollywood movie: the involvement of a famous movie star or the location(s) where the movie is shot?

The answer, to the surprise and chagrin of many Hollywood producers, is the latter. The fact that Johnny Depp, Angelina Jolie, Jack Nicholson or any other Hollywood "A" list actor performs in the movie has only a small correlation to its ultimate success. As Ian Ayres recounts in his book *Super Crunchers*, a company named Epagogix uses a proprietary neural network equation that relies on little more than the information found in a movie's screenplay to predict–with a higher level of accuracy than Hollywood's most experienced directors and producers–how financially successful the movie will be. Not surprisingly, this finding has not been warmly received by most Hollywood elites because it highlights how little they actually know about which characteristics matter most to a movie's bottom line.

This trait highlights another behavior individuals may need to unlearn as they move into the future, and this is the idea of assigning too much weight to one's own opinions or intuition. Extraordinary new capabilities in data mining and computer processing power, when paired with equally powerful advances in algorithms, neural networks and predictive analysis software, are proving that machines are frequently far better judges than humans for many important tasks.

For example, researchers have found that for patients with uncommon medical conditions, Google is now more reliable at assessing those conditions than doctors. Considering that the average doctor has access to only two million pieces of medical information and Google a thousand times more, this isn't that surprising. What is worth considering is the idea that as computer hardware and software improves exponentially, so too will Google's ability to diagnose a growing number of diseases with an even higher rate of accuracy.

In the rarified field of oenology (the study of wine), Orley Ashenfelter has produced a sophisticated regression equation that can predict more accurately than the wine industry's top judges which vintages of red wine will be the most valuable in the future. Ashenfelter cares nothing for swishing wine around in his mouth in search of subtle hints of oak, cherry, tobacco or blueberry but instead relies on weather-related data.

For wine collectors who invest in wine futures, Ashenfelter's information is giving them a distinct competitive advantage over those who can't or won't unlearn their reliance on so-called wine "experts." And only re-

cently have many Las Vegas hotels and casinos unlearned the idea that its most valuable customers are limited to the ranks of wealthy high rollers. Thanks to complex algorithms there are hundreds of middle-aged, middle-income individuals who are now being aggressively courted. If you've ever wondered why your ne'er-do-well Uncle Ned is being "comped" to stay at a nice hotel in Las Vegas twice a year, it's because a computer program has figured that it is likely to make the most money off him.

Therefore, if you ever happen to receive a free weekend in Las Vegas courtesy of a hotel-casino, my advice is to bet against yourself and stay home. It'll save you money.

Homework Assignment 16: Recalling that it took Galileo years to convince people that light objects fell as quickly as heavy objects even though they could see the results with their own eyes, how long—if ever—do you think it will take before all doctors will be required to confirm their diagnoses of patients with a machine? Defend your answer.

Lesson 17: Do the Math Until It Doesn't Add Up

"Let me see: four times five is twelve, and four times six is thirteen, and four times seven is—oh dear! I shall never get to twenty at that rate."
— Lewis Carroll in *Alice in Wonderland*

Question 17: Which is greater: 1 or 2? What about 100 or 10,000?

The correct answer is that it depends upon context. As Shel Silverstein recounts in his famous poem "Smart," context is everything. The poem tells the story of a young boy who trades one dollar for two quarters because "two is more than one." Next, he swaps the two quarters for three dimes because "three is more than two," and then three dimes for four nickels because "four is more than three." The poem concludes with the boy trading four nickels for five pennies because, as you may have guessed, "five is more than four."

It would be nice to believe Silverstein's poem is just a cute little piece about a misguided youth. Unfortunately, many otherwise intelligent

adults continue to make comparable mistakes every day, and it is a habit worth unlearning.

Consider the recent push among businesses and marketers to get followers on the social media site Twitter. On its face, it would appear to be better to have 10,000 followers than 100 followers. What matters, though, is not the total number of followers a business or person has but rather the willingness of those "followers" to spread their ideas, thoughts and opinions.

As Seth Godin reminds us, if a person begins with 10,000 followers and has a tweet with a net pass-along rate of 0.8 (implying her 10,000 followers will forward it to 8,000 new people, who will then pass it along to 6,400, etc.), the tweet has a relatively short shelf life and the idea will soon die out. If, however, she has 100 loyal followers and creates a noteworthy tweet that is passed along to a net of 1.5 new people, her idea will first reach 150 new people after the first tweet and eventually it will overtake the tweet of the person with 10,000 followers after the thirteenth generation. (See graph.) If her idea was only slightly better—say it had a 1.7 net pass-along rate—the effect would be even more dramatic. (See the purple line.)

The point is that it is the *idea* that matters most and not the raw number of followers. Still, many people and organizers obsess over the raw numbers and miss the more important point of providing meaningful, insightful and creative content. Why? Because, like the boy in the Silverstein poem, everyone knows "10,000 is more than 100."

Alas, this isn't always so. Less can be more when you concentrate on the right things.

Homework Assignment 17: For one week, record the number of phone calls and emails you respond to at work. Also count the number of meetings you attend. Next, make a conscious effort to reduce the number in each category by 25 percent. What is the impact on your productivity? Did fewer meetings increase productivity?

Lesson 18:
Don't Follow the Money

"Education is one of the few things a person is willing to pay for and not get."
— William Lowe Bryant

Question 18: This is another question with two parts:

1) Does $50 always equal $50?

2) Which amount of money would you prefer to earn over a three-year period: $110,000 or $150,000?

While it is true that $50 will always equal $50 and $150,000 is, of course, more than $110,000, it is also true that many people ignore these obvious facts and work contrary to their financial interests. If you see a little of yourself in either of the examples below, you may need to unlearn some of your financial behaviors.

Let's first consider the case of the $50. If you were about to purchase a $100 mobile phone and then suddenly learned the same model was being sold for $50 on the opposite side of town, would you drive across town to save the extra $50? When surveyed, an overwhelming number of people stated that they would.

So far, so good.

When the scenario was changed, however, and the product in question was a $40,000 automobile and they were informed that the same model was available on the other side of town for the price of $39,950—or the exact same $50 savings—a majority of people indicated they wouldn't make the trip.

The reason is that a $50 savings on a $40,000 product is miniscule compared to its overall price. Whereas when one purchases a $100 product, a $50 savings is quite significant. The reality is that a $50 savings is a $50 savings, and a person's wallet or bank account doesn't know or care how they accumulated the extra savings. In a perfectly rational world people would work to save $50 regardless of the situation.

One real-world manifestation of this behavior can be found in retail shops. It is a well-known tactic that if a person were to go into a high-end retailer and tell the sales clerk they were interested in buying some socks, shoes and a suit, the clerk would first attempt to get them to buy the suit. Why? Because if they are successful at selling the customer a $1,500 suit, a $300 pair of shoes and $40 for a pair of socks suddenly seems less consequential. If, however, the customer were to begin shopping for socks first, not only would he be less likely to spend $40 on socks, he would also probably think longer and harder before dropping any money on expensive shoes and suits.

The second question stems from another fascinating study in which people were provided a choice between two different scenarios. In the first, they earned $30,000 in year one; $40,000 in year two; and $50,000 in year three. In the second scenario, they earned $60,000 in the first year; $50,000 in the second; and $40,000 in the third.

When asked to select which scenario they would prefer, a surprising number chose the first scenario. This is in spite of the fact that they would earn a total of $30,000 less. (In the first the total equals $110,000 and in the second it equals $150,000.) It is well documented that many people experience the pain of losing money more (as is experienced in the second scenario) and will go to great lengths—including missing out on an extra $30,000—to avoid that pain.

For a real-world implication of this behavior, consider the case of a bargain flight from San Francisco to New York. Imagine the price is $300 on Monday but suddenly jumps to $400 on Tuesday. Many people will skip the deal. If, however, the same flight was originally $800 and then dropped to $600, more people would rush to book the flight because it was a "deal"—even though it is $200 more expensive than the first scenario.

Often, people prefer the illusion of a good deal (a $600 flight that was $800) to the reality of a much better deal (a $400 flight that was $300). My advice: Don't always follow the money, because sometimes it can lead you astray.

Homework Assignment 18: Which are you more likely to sell: a $50 stock that has appreciated $25, or a $50 stock that has declined by $25? Explain and defend your answer.

Lesson 19: Grow from Your Inexperience

"Human beings, who are almost unique in having the ability to learn from the experiences of others, are also remarkable for their apparent disinclination to do so."
— Douglas Adams

Question 19: Which is the more likely scenario?

A. Roger seemed happily married. He killed his wife.
B. Roger seemed happily married. He killed his wife because he wanted her inheritance.

Many people select "B" because it sounds more plausible. But it's the wrong answer. The correct answer is "A" for the simple reason that logically, the more broadly worded description depicted in scenario A not only includes scenario B but also every other possible reason why Roger may have killed his wife, including reasons of anger, jealousy, mental illness or accident.

The relevance of this common mistake of focusing on the specific to

the exclusion of the general can be found in how many people think about insurance. After September 11, 2001, many people were more inclined to purchase insurance to protect against acts of terrorism even though injury or death due to terrorism was already covered under the terms of most general insurance policies. Rental car companies also play off people's inexperience when they encourage customers to buy "extra" insurance. The rental companies know it is easier for people to imagine the specific experience of getting into an automobile accident in a new city with a rental car, and they use this knowledge to get the customer to purchase additional (and unnecessary) insurance.

It is not sufficient to merely get others to stop profiting from our inexperience; there are additional ways to profit from your own inexperience—provided you're willing to unlearn.

In many cases, we can learn from those who have experienced something we have not. Unfortunately, this is more difficult to do than it may sound because people don't like to believe they are "average" and that their experiences will mirror the experiences of those who have gone before them.

In his book *Stumbling Upon Happiness*, Dan Gilbert documents how people who win the lottery are not happier a year after winning the lottery. Nevertheless, the overwhelming majority of lottery players are convinced they are unique (or "not average") and, unlike those other poor saps who won the lottery and didn't achieve happiness, winning will definitely make them happy. This illusion keeps them playing (and, for the most part, los-

ing) even though it might have been avoided by applying other people's real-world experiences to their hypothetical future experience.

The second way to unlearn from our inexperience is to become cognizant of the fact that often our most vivid memories come from the most unlikely experiences. This causes people to believe these rare experiences are more common than they actually are. For example, do you "always" get in the slowest lane at the grocery store or on the highway during rush hour? The reality is that you don't. You just don't recall all the times your lanes are moving at a normal or faster-than-normal clip.

The same effect is at work when people refuse to fly in an airplane after a bad plane crash. Airline accidents are exceedingly rare and, statistically speaking, it is far more dangerous to drive than fly. Because people can more easily and vividly recall these unlikely plane crashes, however, they are more likely to select a different—and far more dangerous—mode of transportation.

By reminding yourself of the totality of your experiences—as well as the experiences of others—not only can you gain a clearer picture of reality, you may even grow enough from your inexperience to extend your life.

Homework Assignment 19: Think of someone who has made an unfavorable first impression on you but receives high praise from others. Using those experiences from other people, make a list of the person's favorable characteristics. Next, construct a list of things that you have not experienced about the person. Now, explain how your first impression might have been wrong.

Lesson 20:
Mix Up Your Mind

"The mind is like an iceberg, it floats with one-seventh of its bulk above the water."
— Sigmund Freud

Question 20: According to the latest research, IQ accounts for what portion of career success?

a. 50 to 60 percent
b. 25 to 49 percent
c. 23 to 34 percent
d. 11 to 22 percent

The answer is between 4 and 10 percent. In other words, "none of the above." This question comes compliments of Dan Pink, who used it in his best-selling book *A Whole New Mind* to suggest the idea that confining oneself to the answers presented is "a symptom of excessive left-directed thinking."

In order to unlearn, however, it is not enough to train yourself to use right brain-directed thinking—although this is helpful. A person or an organization must also intentionally mix up their thinking in order to get a clearer picture of reality.

For example, did you know that if a person scores low on an IQ test they are likely to spend more time reading articles that refute the validity of the IQ test? The reason is because once an outcome has been determined and the experience can no longer be changed, people look for ways to change their view of the experience.

The same is true with the stocks we buy, the cars we purchase and the schools where we send our children. In each case, after the fact, people prefer finding information confirming–rather than refuting–their decision. This process may make them feel better, but it is unlikely to lead to better decisions in the future.

What, then, is a person to do? One strategy is to mix up your thinking. Specifically, look for information that contradicts your interpretation of the situation, consider the situation from multiple viewpoints or actively solicit input from people with a different perspective.

Google and Proctor & Gamble (P&G) provide a good example. In the past, the companies swapped two dozen key employees. For its part, Google was interested in winning over a larger portion of P&G's $9 billion annual advertising budget, while P&G was concerned that only a small fraction of its advertisement budget was being spent online and it wanted to better understand the Internet's potential.

The intentional mixing of the two cultures allowed each company the opportunity to see their current business dynamic–as well as future opportunities–in a different (and, perhaps, clearer) light by forcing employ-

ees to challenge key assumptions about how they viewed their business environments. P&G, for example, wasn't inviting influential bloggers to attend press conferences for the roll out of new products, and Google didn't fully appreciate how important colors were to building brand image.

Mixing up your mind need not always involve others. Sometimes it can be as simple as changing your mind-set. In an influential study, Ellen Langer studied 84 women who cleaned hotel rooms. One group of women heard a brief presentation explaining how their work qualified as good exercise. The other group did not. The two groups then continued on with their regular work routine. Surprisingly, the group that heard the presentation displayed more weight loss and experienced larger declines in blood pressure. In short, they became healthier by virtue of nothing more than a change of perspective.

Langer's studies and the Google-P&G employee swap are tangible reminders that if you are serious about seeking new insights and achieving better results, you don't need a high IQ. All you need to do is "mix up your mind."

Homework Assignment 20: Locate a regular optometrist's eye chart which begins with the largest letter on top. Test your vision. Make note of the last line you could read. Next, locate an eye chart that begins with the smallest print on top. Make note of the last line you can read. Did your results improve?

Lesson 21:
Know Doubt

"Doubt is not a pleasant condition,
but certainty is absurd."
— Voltaire

Question 21: How much of the earth is water?

Did you say somewhere between two-thirds and 75 percent? If so, you are incorrect. As John Lloyd and John Mitchinson explain in their delightful book *The Book of Ignorance*, "Seven-tenths of the earth's surface is *covered* by water but water accounts for less than a fiftieth of one percent of the planet's mass."

If it makes you feel any better, more recent research suggests there may be five times as much water dissolved deep under the earth's crust. If true, the answer may need to be revised upwards to the neighborhood of 0.1 percent.

In many ways our knowledge is analogous to the amount of water covering the earth's surface. It may look substantial—indeed—it may even be the reason for our survival, but there will always be so much more that we will never know.

The task then is to unlearn the false confidence that our knowledge provides and replace it with the less pleasing, but ultimately more realistic, strategy of harboring more doubt.

How can this be done?

The answer, in part, can be found in the work of Irving Janis, who in his seminal book *Groupthink* outlined six methods to help individuals and groups of like-minded people to challenge the confidence of their knowledge prior to relying on it to make a difficult decision. Specifically, Janis advised leaders to:

1. Assign the role of "critical evaluator" to everyone involved in the decision-making process so they can freely air concerns, objections and doubts.
2. Keep their opinions to themselves so as to prevent subordinates from tailoring their advice or withholding dissenting opinions.
3. Set up independent groups to work on the same problem.
4. Effectively examine all alternatives.
5. Actively solicit the opinions of outside experts.
6. Appoint a devil's advocate.

Janis used the Kennedy administration's ill-fated invasion of the Bay of Pigs as a classic example of how groupthink can lead to overconfidence in a group's knowledge, but the global financial meltdown brought on by the subprime mortgage fiasco is a more recent example. Of course, hindsight is 20/20, but if everyone in the banking and insurance industries from

the CEOs down to the government regulators and the consumers themselves (who overextended themselves) had been less certain of themselves and embraced some doubt, the outcome may have been less severe. For example, the parties involved might have tempered their feelings of excessive optimism and pierced the illusion of the housing market's inevitable and continuous rise if they had conducted an objective survey of alternatives and more thoroughly examined the risks. Similarly, by actively seeking outside experts, diverse opinions and engaging the services of a devil's advocate, the parties involved may have been made aware of their biases, conducted better information searches, and spent more time developing contingency plans.

As a wise person once said, "The only thing I am certain of is that there is too much certainty in this world." In this spirit, then, it would be unwise to expect that all foolish and poor decisions can be avoided in the future. But they can perhaps be spotted earlier, be better contained and dealt with more swiftly and effectively if more people would occasionally substitute confident statements of "no doubt" with the more modest philosophy of "to know doubt."

Homework Assignment 21: What world-famous inventor said, "We don't know a millionth of one percent about anything"?

Lesson 22:
Lose Sight of the Shore

"The real voyage of discovery consists not in seeking new landscapes but in having new eyes."
— Marcel Proust

Question 22: There is a small town that has only one street. The street runs in an east-west direction and is exactly one mile in length. The town council recently granted liquor licenses to two taverns with the proviso that the establishments be situated so that each town's inhabitants and the tavern owners experience maximum convenience. Where along the one-mile street should the establishments be located?

Did you say that the taverns should be positioned on opposite sides of the street at the half-mile point? This ensures both taverns will draw an equal number of patrons, but the locations are not maximized for the customers' benefit. To do this, the establishments must be located at the one-third–and two-thirds-mile marks. Under this scenario both taverns draw an equal number of people, but no one in the town walks more than one-third of a mile. The difference is that in the first scenario the tavern owners optimize the situation for their own benefit, but that didn't yield the best solution for the town's residents.

The situation has comparable real-world implications, and it is a be-

havior worth unlearning because it can lead to missed opportunities. In his book *Guns, Germs and Steel*, Jared Diamond writes that one of history's greater curiosities is the fact that the large island of Madagascar, which sits only 225 miles off the coast of Africa, wasn't discovered by Africans. It was discovered by peoples from Indonesia—a country thousands of miles to the east. Much the same dynamic is at play when large and established businesses miss big opportunities close to home.

W.Chan Kim and Renee Mauborgne argue persuasively in their book *Blue Ocean Strategy* that one of the best methods for achieving success is not to go head to head with the competition (as in the aforementioned example of placing one tavern directly across the street from another), but instead to delve into unknown market space or what they refer to as Blue Ocean opportunities.

This is precisely what Cirque do Soleil chose to do when it reimagined the circus. It didn't try to compete with Ringling Bros. and Barnum & Bailey with longer trapeze sets or larger and better-trained elephants. Instead, it created an entirely unique experience that didn't rely on any animals and rather emphasized theme and artistic music, along with a rich and diverse pool of dance and performance art.

In the beginning Cirque du Soleil was considered cutting edge and avant-garde (and it still is). But by venturing forth into unchartered waters, it has redefined the meaning of the circus and has brought its art to millions of people around the world.

As was mentioned in Lesson 7, unlearning requires a willingness to "see what isn't there," and it is impossible to see far beyond the shore when you are tethered to it. Or, as Andre Gide more eloquently wrote, "Man cannot discover new oceans unless he has the courage to lose sight of the shore."

Homework Assignment 22: In 2008, Nintendo was able to recapture a large share of the video gaming market by developing a new gaming console (the Wii), which could be used by its non-customers (seniors). Today, the 55—to 65—year-old demographic is the fastest-growing segment of the video gaming market. Consider and design a product for a group of people who are not your customers today.

Lesson 23:
Ignore the Eclipse and Admire the Sunset

"We must unlearn the constellation
to see the stars."
– Jack Gilbert from the poem "Tear It Down"

Question 23: In 2003, what money-losing product far exceeded its sales projections for the year in spite of the fact that the manufacturer made no material upgrades to the product and spent less money on advertising?

The answer is Oldsmobile, and its success was all the more surprising because its parent company, General Motors, had decided to discontinue the line after 2004 due to consistently weak sales. In retrospect, this paradoxical outcome was driven by the realization by potential customers that Oldsmobile was only going to be available for a limited time.

The idea that something is special just because it is limited in number—or even rare—is worth unlearning on a limited basis. Sometimes limited items and objects are special and deserving of our attention. Often, however, they are not.

Consider, for example, sales of other products that are advertised as being available for a "limited time." This time-honored marketing tactic has been employed for one simple reason: it works. People fear the potential loss of the product more than the actual benefit it will deliver. If you have ever ended up with buyer's remorse or wondered why you are donating a pair of shoes you never wore to charity, it is possible you fell prey to this trap.

The "scarcity principle"—the idea that since something may be going away it makes sense to buy it—is part of the same theme. The problem becomes more pernicious when even more people are clamoring for the scarce item. If you've ever witnessed the insanity of a preholiday rush as a store's patrons sprint to secure the last few remaining versions of a Cabbage Patch doll, Tickle-Me-Elmo, Beanie Baby or the latest "must-have" toy, you get the general idea. Many people are motivated by nothing more than the fear of being left empty-handed.

This habit of confusing scarcity with value leads to the unusual title of this unlearning lesson. During my sophomore year of high school, I recall being dragged outside during the middle of the school day to view a rare full eclipse. The only problem is that I wasn't actually allowed to look at the eclipse as it occurred, lest I do irreparable damage to my eyes. To avoid this cataclysmic fate, my fellow classmates and I were instructed on how to construct a "pinhole projector." As I recall, we punched a hole in the flimsy piece of poster board and held the board up so that it blocked our view of the event and, in its place, cast a shadow of the eclipse onto

the ground. It was, to say the least, a decidedly unsatisfying experience.

I mention this because during high school I was never once advised or encouraged to get up early to enjoy the radiant beauty of a sunrise or to slow down at the end of a day to admire the magnificence of a setting sun—even though both are far more beautiful than a solar eclipse.

The relationship between quantity (or availability) and value is often tenuous at best and sometimes can be as weak as the shadow of an eclipse cast upon the ground through a makeshift pinhole projector.

Homework Assignment 23: While enjoying either an early morning sunrise or a late afternoon sunset, make a list of common items that have great value to you and compare it with a second list of those scarce items you possess but hold little value.

Lesson 24: Playing It Safe Is Risky

"Beware of false knowledge, it is more dangerous than ignorance."
– George Bernard Shaw

Question 24: Do more people die jaywalking or in a designated crosswalk?

The answer is the crosswalk. The reason is because people are lulled into a false sense of security due to the allure of existing rules such as painted crosswalks and flashing signs. As a result, they don't feel as compelled to pay close attention to the actions of others. When jaywalking, people are under no such illusion and remain vigilant and fleet of foot.

This lesson is appropriate in today's business environment in two important ways. First, too many business leaders and organizations are lulled into complacency by tradition, existing rules and the power of the status quo. Like the white painted lines on a crosswalk, the protection their market position or brand offers is often nonexistent. Worse yet, much as the flashing lights and warning signs provide a false level of security to a pedestrian, the signals customers send businesses also offer illusionary protection against an accelerating future. The problem is that by the time a person or organization realizes the danger they are in, it is too late and they are run over.

Clayton Christensen, in his excellent and now classic book *The Innovator's Dilemma*, provides numerous examples of industry leaders refusing to heed the oncoming sounds of new threats because they were so attuned to the needs of their best customers—customers who were primarily focused on incremental product improvements.

This purportedly safe approach (i.e., "the customer is never wrong") left them vulnerable to new competitors who were willing to ignore existing rules and opted instead to jaywalk in the direction of those "risky" fringe customers. Over time, the niche markets serving these small communities mature and the product's features or capabilities that were initially only demanded by those on the fringe come to be seen as valuable to mainstream audiences. Unfortunately, by the time this becomes evident to the existing players, it is too late and they ceded the marketplace to an upstart company. Think about how IBM was caught flat-footed by the personal computer in the 1980s, large book retailers by the Internet in the 1990s and the music industry by digitalization in the first decade of the twenty-first century.

What's next?

Industries destined to feel a similar effect in the future include the energy, gaming and manufacturing industries. Advances in nanotechnology are fueling startling advances in solar and fuel cell technology. These technologies, many of which are now expensive and limited in capability, don't appear to represent much of a threat today, but as they improve they will create a vastly more decentralized energy distribution network and

transform the energy paradigm. If existing leaders in the energy sector ignore these signs they will be run over. The same is true with how hand-gesture and 3-D technology will transform gaming culture, and advances in 3-D printing are poised to lead to radical new manufacturing and supply chain distribution models.

What, then, is a person or organization to do? Jaywalk. That's right. Break the rules. Doing so will not only make you more aware and and alert to the dangers around you, but you'll also be more likely to chart a quicker path to future customers.

Remember, unlearning isn't risky. What is risky is playing it safe.

Homework Assignment 24: Did you know that after childproof lids on medicine bottles were introduced, the change led to a significant increase in the number of child poisonings? The reason is because parents became *less* careful about keeping the bottles away from their children. With this analogy in mind, explain how a supposedly safe strategy your organization is implementing may actually be risky.

Extra Credit: Identify at least one area where the rules in your business are changing and explain how a supposedly risky strategy may actually be safer.

Lesson 25: Put One Foot in Back of the Other

"Every mile you go in the wrong direction is really a two-mile error. Unlearning is twice as hard as learning."
— Unknown

Question 25: Imagine that the Roman numeral equation below is made out of ten toothpick sticks such that "I" equals one stick and the "X," "+" and "=" all represent two sticks:

XI + I = X

Your mission, should you choose to accept it, is to fashion the correct answer by moving around as few sticks as possible. (Translated, the equation currently reads 11 + 1 = 10.)

If you answered that you move one stick–by placing the "I" on the left side of "X"–to create this new equation: IX + I = X, you solved the problem, but you did not get the correct answer. The correct answer is that you move zero sticks. The solution merely requires you to flip the equation over backward providing the following result:

X = I + IX

What is interesting about this problem is that when students had their brains scanned while solving the problem, the brain waves associated with memory and conventional mental activity experienced abrupt decreases just prior to the solution becoming apparent. This result has led researchers to theorize that thinking spatially may be one way to expand problem-solving potential.

Earlier in the book I encouraged you to "become uncomfortable in your own skin" by unlearning the regular way you fold your hands or cross your arms. I'd now invite you to take this a step further and identify a few other daily rituals that you can do in a spatially different manner.

For example, if you are right-handed, try using your left hand to brush your teeth or move the mouse on your computer. You may also consider putting your pants on with the leg opposite the one you normally choose first. Other ideas include eating corn on the cob differently (e.g., if you normally nibble corn horizontally along the rows, try consuming it in vertical fashion by mowing up the columns) or eating your pie from the outer edge.

Such activities sound frivolous, but in each case the brain is required to reactivate seldom-used neural connections. Sometimes these new connections can lead to innovative insights that may facilitate unlearning older and more conventional problem-solving approaches.

For instance, eating pie from the edge was instrumental in causing pizza companies to experiment with making the crust more enjoyable by

infusing it with cheese. And the analogy to the Roman numeral quiz is apropos of the engineer who was charged with making elevators run more quickly in order to appease growing customer dissatisfaction with long waits. When faced with safety concerns that limited the speed of the elevators, the engineer flipped the question on its head and asked the seemingly ridiculous question: "What would we do if we wanted to make the passenger wait longer for the elevator?" The result led him to install mirrors by each elevator. The tactic didn't change the speed of the elevator, but it did take passengers' minds off the delay and caused the underlying problem to go away.

Homework Assignment 25: In 1996, Guinness was plagued by plummeting sales due to consumers growing impatient with the time it took to properly pour a Guinness (the process takes about two minutes). To overcome the problem, company officials made no changes to their beer and instead turned the "problem" of slowness into a virtue by creating a new ad campaign slogan: "Good things come to those who wait." This, in turn, converted a supposed liability into an asset. Your assignment is to identify one problem or trouble area in your business and turn the issue on its head. List at least one outcome from this process.

Lesson 26: Stop Looking for Patterns

"We are so good at seeing patterns that, often, we see them where they don't exist."
— Michael Mauboussin

Question 26: If you flip a coin fourteen times, which scenario (A or B) is more likely to occur?

A. The coin will land on heads (H) 14 straight times:
H-H-H-H-H-H-H-H-H-H-H-H-H-H

Or

B. The coin will land with the random outcome of tails (T) and heads (H): T-T-H-T-H-H-H-T-T-H-T-H-T-T

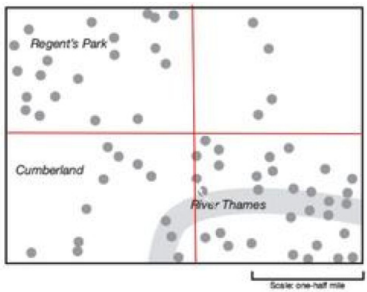
The answer is that the odds of each scenario occurring is exactly the same:1 in 16,384. And yet to most people, the first outcome is viewed far differently and is seen not as a random outcome but instead as part of a clear and established pattern.

To demonstrate the point, consider one of the more statistically improbable outcomes from the world of sports: For the past fourteen Super Bowls (1998 to 2011), the team from the National Football Conference (NFC) has won the coin toss.

Now, the NFC team has not always called "heads." In fact, the NFC team has been just as likely to call "tails." Moreover, the NFC team only calls the coin toss every other year. Still, the NFC has defied the odds by being on the winning side of the coin toss fourteen consecutive times.

This outcome is no more likely than fourteen straight heads, fourteen straight tails or 16,383 other permutations. The NFC's streak is, to be sure, a matter of extraordinary good fortune, but it is not part of an established pattern from which you can discern anything about the future other than the fact that the odds of the NFC team winning the coin toss for a fifteenth straight time is only 50 percent.

This won't stop countless individuals from believing there is a clear pattern. To better understand why this behavior is worth unlearning, consider this map of London showing where German V-2 rockets hit the city during World War II.



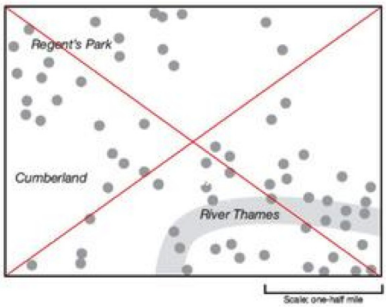
1-3.
Map of London showing V-1 rocket strikes (Adapted from Gilovich [1991])

From the above map, it appears as though the area in and around the River Thames (in the lower right-hand corner) was being targeted. This pattern may cause a person to take the seemingly logical action of moving

to the neighborhood in the upper right-hand corner on the assumption it is safer.

Watch what happens, however, when the boundaries of London are reconfigured into a diagonal pattern (see the map below). The distribution of the bombs now appears much more evenly distributed even though where those bombs fell hasn't changed. The result is a visual reminder that our perception of reality can be framed by arbitrary randomness around which we place boundaries—or patterns—after the fact.

In the world of business, the situation is far worse because frequently



ap of London showing V-1 rocket strikes (Adapted from Gilovich [1991])

people "see" established "patterns" after only one or two examples. For instance, how often has a board of directors hired a CEO who was successful in his past job, or a university lured a football or basketball coach who had a winning season at his last school, only to watch him fail miserably in his new position? The CEO or coach may have looked like a safe choice (much like the one London neighborhood looked safe), but "bombs" have a way of catching up with people if they lull themselves into believing they have discerned a pattern that does not, in reality, exist.

Homework Assignment 26: If a stockbroker advertises she has beaten the market for three consecutive years, how much credence should you assign to the claim?

Extra Credit: If LeBron James, a career 53 percent shooter, has hit his last eight shots in Game 7 of the NBA finals, how likely is he to hit to next shot?

Lesson 27: Show Your True Colors: Fear Commitment

"A foolish consistency is the hobgoblin of little minds."
– Ralph Waldo Emerson

Question 27: What do chameleons do?

They do many things, but the one thing they don't do (as many of us believe) is change color to match their background. Chameleons do change color in response to changes in light and temperature. They also change appearance when frightened or when attempting to gain the attention of a member of the opposite sex.

This distinction between changing to meet *every* change in external conditions and changing only in response to those factors critical to one's long-term well-being or survival is an important one.

From a human perspective, the difference can best be seen in the actions of a "yes man" (someone who too readily modifies his message to match the viewpoints or beliefs of his audience) versus a person who changes his mind in response to new information.

There is, for example, a big difference between the lone juror who has reservations about the guilt of the defendant, but goes against her convictions and votes "guilty" with the other jurors for the sake of expediency, and the juror who had originally sided with the majority but, when presented with compelling, new information, changes her mind based on the principle of fairness.

The distinction is an important one especially in a social climate where changing one's mind has become something of a liability. To this end, how often have you heard a politician skewered by an opponent because he or she has changed position on an important topic? "Candidate so-and-so was *for* it before he was *against* it!"

Distinguishing when someone is changing positions for expediency's sake and when they are doing it as a matter of principle can be difficult to assess, but one strategy for avoiding such situations yourself is to "fear commitment" and steer clear of making unnecessary public declarations in the first place.

It has been scientifically demonstrated that once a person publicly commits to a course of action or proclaims a belief, he is far less likely to change his position. The remedy then is to keep an open mind and maintain a position of "non-commitment" as long as possible. Of course, as anybody in a long-standing romance where one partner refuses to commit to the relationship can attest, this strategy is not without risks, but these can be minimized. In fact, the solution can be found by emulating the actions of the chameleon.

Again, it is not true that these creatures change in response to every external change—and neither should you. Rather, the key to survival is to contemplate which external factors are critical to your survival and change only in response to those. In the case of the chameleon, they change to regulate their temperature, hide from predators or procreate. In other words, they commit to changing only when one of three criteria has been met: 1) their external environment has changed; 2) to avoid being killed; or 3) to survive and propagate as a species.

Their behavior is worth mimicking. It is probably true that at some point everybody will "show their true colors," but it is also equally likely that every person's true colors will change in response to external factors. The trick, then, is to avoid committing to a one-color policy in a multi-color world.

Homework Assignment 27: Think of a time when either you or your organization made a public commitment that you later regretted. How did that commitment either slow you down or prevent you or your organization from making a positive change?

Lesson 28: Do Stop Believing

"Man prefers to believe what
he prefers to be true."
— Francis Bacon

Question 28: True or false: Hypnosis is useful in helping witnesses accurately recall the details of crimes.

False. Hypnosis helps people recall more information, but not more *accurate* information. Yet, according to a scientific study, 61 percent of people still falsely hold this belief about the power of hypnosis. In addition, 65 percent of people also believe that they can sense when someone is staring at them from behind; and an even higher percentage (76 percent) believe that subliminal messages in advertisements can cause people to buy things. As with the hypnosis theory, the latter two beliefs have also been scientifically proven to be untrue.

With apologies to the band Journey and their 1981 hit "Don't Stop Believin'," to effectively engage in unlearning it is, in fact, healthy to stop believing. Please note that I'm not saying, nor am I advocating, that people rashly drop all of their beliefs—only that they temporarily stop believing.

Specifically, there are three things people can do to become more

open to unlearning. First, they must learn to suspend their beliefs. To do this one need only admit the possibility (however remote or unlikely) that one's belief may be misguided or wrong. Second, once someone has engaged in this thought exercise and allowed a thin crack of light to pierce the belief, he or she should actively seek out the opinions of those who believe differently. At this stage, a person should merely listen to the arguments of others regarding their beliefs and try to do so without judging those beliefs.

Next, if those who believe differently raise legitimate counterpoints, the person who is unlearning should use those points to further explore his or her own beliefs. Better yet, if there were surprising observations (for example, scientific studies highlighting how hypnosis doesn't improve accurate recall, how people can't tell if someone is staring at their head or proof that the person [James Vicary] who originally claimed that subliminal ads in movies increased sales of Coca-Cola admitted his study was a fraud), they should turn those surprises into question marks and use those questions to further investigate why they believe what they do.

In the Paris riots of 1968, students spray-painted signs on walls saying, "We demand the right to contradict ourselves." It is easy to laugh at this statement and dismiss it as the epitome of sophomoric indiscretion. It is much harder to view it as a wise statement. Alas, it has been said that the "wiser one becomes, the more one is able to contradict one's own ideas."

The problem is that modern society has made self-contradiction a shameful act. It isn't. What is shameful is an inability to change one's

mind when presented with new and contradictory information. The ability to change one's mind—even on long-held beliefs—is not a weakness, it's a strength.

Ironically, by submitting your beliefs to continuous and rigorous examination, the beliefs you do choose to hold on to will likely come to rest on a more stable and solid foundation.

Homework Assignment 28: Do you believe that humans only utilize 10 percent of their brain capacity? Or do you believe that listening to classical music will improve a young child's intelligence? If so, suspend your belief and seek out people who believe differently from you. What were the results of your research?

Lesson 29: Don't Reach for the Stars

"When it becomes necessary to develop a new perception of things, a new internal model of reality, the problem is never to get new ideas in, the problem is to get old ideas out."
— Dee Hock

Question 29: How many planets are there in our solar system?

The answer is eight. If you said nine don't feel bad because that was the correct answer until August 24, 2006, when the International Astronomical Union (IAU), in its infinite wisdom, declared Pluto a planet no more.

In addition to delivering a crushing blow to Pluto's planethood by ignominiously demoting it to "dwarf planet" status, the IAU also singlehandedly rendered obsolete the famous childhood mnemonic for recalling the names of the then nine planets of Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto: My Very Excellent Memory Just Served Up Nine Planets.

In terms of unlearning, however, it is not Pluto that concerns us, but

rather Uranus. This is because between 1690 and 1769, the planet was observed no fewer than eighteen times—six times by the English astronomer John Flamsteed, and an additional twelve times by the French astronomer Pierre Lemonnier. In each instance, the orb was not recognized as a planet and was instead believed to be a star because of its dimness and slow orbit.

It was not until William Herschel observed the planet on March 13, 1781, and, in a subsequent report to the Royal Society described it as a "comet," that experts began to consider that it might be something other than a star. Still, it took an additional two years before most astronomers agreed the celestial body was neither a comet nor star but, in fact, a new planet. The story reminds us that when we are predisposed to see something in a certain way, it can be challenging to see it from a different perspective.

In a landmark psychology study, Jerome Bruner and Leo Postman showed a group of twenty-eight college students a series of playing cards. Most of the cards were normal but some were incongruous. On the incongruous cards, the colors and suits were reversed so that, for example, the three of hearts was black and the six of clubs red.

Whereas most students quickly identified the normal cards, it took, on average, four times longer for them to correctly identify the incongruous cards. There were three typical reactions. The most common was what the authors called a "dominance reaction." In such cases, the hearts on the cards were seen as red regardless of whether they were colored black.

A second outcome was what Bruner and Postman called a "compromise reaction." A black heart may be described as "purple" or "brown." In essence, the "red" heart the subject expected to see would blend with the black heart on the paper and merge in the subjects' minds to create a compromise color. Lastly, in a few rare instances, the subject would recognize something was wrong but be unable to articulate the appropriate solution.

For unlearning, the real-world implications of this study and the Uranus story are evident in many aspects of our lives. In his book *Moneyball* Michael Lewis describes how many baseball scouts eschew a player's statistics and assess (and ultimately draft) baseball prospects on their physique because "they look like a baseball player."

Voters do much the same with political candidates. In a recent study, people were shown the pictures of two opposing candidates—with no other information—and were asked to identify the more competent candidate. Surprisingly, their selections corresponded with the winning candidate 70 percent of the time. The finding strongly suggests that voters, when engaged in one of the most important civic duties in a democracy, are taking into consideration things other than performance-based information when selecting political candidates. Put another way, "looking the part" plays a large role in helping voters determine whom to vote for.

Like Uranus, baseball scouts and voters may believe they know a "star" when they see one, but they may be better off using this new mnemonic for recalling the eight planets: Many Vain Experts Must Just Study Unlearning Now. If you do, you may just stop reaching for the "stars" and come to perceive the world a little more clearly.

Homework Assignment 29: Could a politician with the physical appearance of Abraham Lincoln or the physical disabilities of Franklin Delano Roosevelt be elected president today? If not, why not, and are there similar prejudices in how CEOs, doctors or "star" marketing executives and salespeople are selected and hired?

Lesson 30:
Zone Out to Zone In

"We must be willing to sit on the edge of mystery and unlearn what has helped guide us in the past but is no longer useful."
— Robert Wicks

Question 30: Consider these three words: eye, gown and basket. Can you think of another word that relates to all three?

If not, don't fret. Zone out. That's right, don't focus, concentrate, "zone in" or even try to get "in the zone." Just allow your mind to wander.

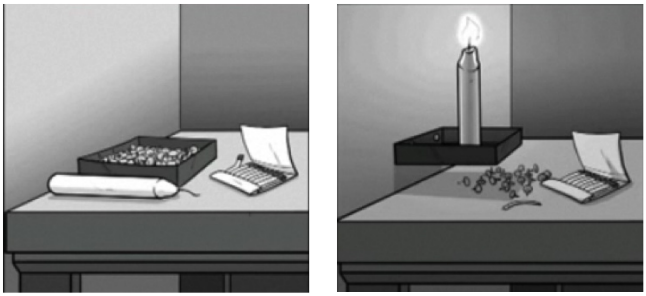
Of the many beliefs and habits society must unlearn, one is the idea that the traits of concentration and focus are undeniably positive attributes. This is not to imply these traits are bad. They aren't. In fact, for the most part, concentration and focus are instrumental to a person's or an organization's success.

As with so many other things in life, however, moderation is necessary. With this caveat in mind, I'd like to therefore give you permission to daydream and zone out on occasion. New scientific research suggests that "mind wandering" can yield positive results; and, if you have ever come up with a clever, creative or innovative solution to a pesky problem while

walking, exercising or taking a hot bath or shower, you can testify to its benefits.

Scientists theorize that while zoning out people are more apt to engage different parts of their brain. This facilitates the creation of new connections which, in turn, lead to new insights and the development of creative solutions.

In his excellent book *Drive: The Surprising Truth About What Motivates Us*, Dan Pink recounts the work of psychologist Karl Duncker and his "candle problem." In its simplest form, people are given a candle, a box of tacks and a book of matches and told to attach the candle to a wooden wall in such a way that no wax drips on the table. (See figure 1.)



Most people begin by attempting to adhere the candle to the wall with a tack or by melting the bottom of the candle and sticking it to the wall. Neither strategy works. Before the problem can be solved people must overcome what is termed "functional fixedness." In this case, participants must see the box of tacks as a platform for the candle that can also be attached to the wall.

What is more interesting is that when another psychologist offered students a financial incentive to solve the problem, he discovered it took the students an average of 3.5 minutes *longer* to solve. The reason is because the inducement of a financial reward caused most of the students to narrow their focus. In other words, they zoned in on a misguided solution and it hindered their ability to see the problem from a different (and ultimately more constructive) perspective.

Now, return to the question at the beginning of this section. Have you arrived at the correct solution? If not that may be because you have kept your eye on the ball too closely. You'd have been better off taking a break and playing with a ball or perhaps shopping for a ball gown. (If you still haven't arrived at the solution the word that related to all three is *ball*.)

Homework Assignment 30: Identify at least one way you can give yourself or your employees permission to "zone out." Alternatively, figure out how to carve out more time in your day to stay *unfocused*. If you still can't come up with any ideas, get away from your office or desk and go for a walk, take a hot shower or just daydream and see if there is anything in particular that comes to mind.

Lesson 31: Engage in Situational Unawareness Training

"Be very, very careful what you put into that head, because you will never, ever get it out."
— Thomas Cardinal Wolsey

Question 31: A yield sign has two colors. What are they?

Did you say yellow and black? That answer would have been correct if *Marcus Welby, M.D.* were the top-rated TV show, Richard Nixon still occupied the White House and NASDAQ had yet to become a leading stock market index. Since 1971, the yield sign has been red and white. Interestingly, a large number of people (including many born after 1971) still erroneously believe the yield sign is yellow and black.

This phenomenon demonstrates that once a thing has been learned—even something as common as the color of a sign—it can be very difficult to unlearn. This occurs, in spite of the fact that people have been observing (and hopefully, obeying) red and white yield signs for four decades.

Compare this situation to the actions of computer industry executives in the 1980s who, having learned about computers in the era of mammoth

mainframes, were accustomed to producing their own proprietary hardware and software, as well as having internal sales teams market and sell the expensive products they created.

With the advent of the personal computer the rules suddenly changed, and companies began relying on microprocessors and packaged software, and using third parties to distribute and sell the product. A handful of computer companies adjusted but many others, such as Digital Equipment, Wang and Burroughs, did not because they either didn't unlearn the old rules or were late in responding to the new signs.

The same situation occurred more recently in the telecommunications industry. Prior to the creation of the iPhone, service providers dominated the telecom industry and dictated to phone manufacturers the terms of agreement. The creation of Apple's multi-touch, gesture interface and "apps"-laden device changed the industry virtually overnight. In a matter of months, millions of people switched providers and began using mobile devices to access the Internet (with a user-friendly browser), watch videos, read electronic books and, together with the growing universe of software applications, do everything from locating their parked car at an airport to keeping their child mildly amused with an easy-to-download "fart app."

In each case, the signs of change were not immediately obvious, but they could have been picked up on if industry leaders had engaged in some situational "unawareness" training by stepping outside their industry's existing paradigm and scanning the environment for subtle changes

in technology, consumer behavior and the competitive landscape.

For example, in the automotive industry, new advances in nanomaterials and battery power may lead to radical new designs; the continued growth of social networking may demand that the cars of the future maintain constant connectivity and improve the driving experience; and advances in robotics and rapid prototyping could transform the manufacturing process and revolutionize the global supply chain. In each case, automotive industry professionals will have to unlearn what a car looks like, how it is made and powered, what it is expected to do and with whom they will have to partner in order to build the car of the future.

Virtually every other industry, including education, energy and health care, faces comparable changes, and one excellent way to prevent yourself and your organization from being run over by these emerging trends is to stop focusing on what you think you know and become more recognizant of how unaware you actually are.

Homework Assignment 31: Using Starbucks as a case study, identify three emerging trends in technology, consumer behavior or the beverage/food industry that may necessitate company officials unlearning some aspects of its current business model.

Lesson 32: Don't Just Do Something, Sit There

"When men know not what to do, they ought not to do what they know not."
— Abigail Adams

Question 32: If five frogs are sitting on a log and four decide to jump off, how many are still sitting on the log?

The answer is five, because *deciding* to do something isn't the same as actually doing it.

From childhood, we are instilled with a bias for action. In many cases, it's a useful trait. It's even possible our bias for action is a genetic hand-me-down from our prehistoric ancestors, and it enabled us to avoid being devoured by predators by reacting with haste to the slightest rustling in the bushes. (Better safe than sorry, right?)

Is this bias toward action something then that we really need to unlearn? The answer is a qualified yes. To understand, consider that the scientists studying the odds of goalies trying to stop penalty kicks concluded that a goalie's best strategy was to stay put. If they had followed this course of

action, goalies would have successfully stopped the shot 33 percent of the time. According to the data, however, goalies only employed this strategy of "staying put" 6 percent of the time.

There is a reason for this: people don't like "doing nothing." In fact, people who don't act often feel a deep emotional pang of guilt over their inaction. In the case of a goalie during a shootout, for instance, the goaltender would feel worse for standing there than if she had dived left on a kick to the right. This is true even though the outcome would have been the same—a goal. In common parlance, the feeling can best be summed up with the phrase, "At least she did *something*."

The example of a goalie staying still may seem trivial, but the implications for staying put can have real-world implications. Consider the stock market. It is not uncommon for people to rush in and buy a certain stock when others are doing the same. The result, as a spate of investing "bubbles" have recently demonstrated, is the creation of artificially high and, ultimately, unsustainable stock prices. Counterintuitively, many people also follow the actions of others when selling a stock. They sell only because other people are selling—not because the underlying of the fundamentals of the stock has changed.

Warren Buffett is one of the world's richest men, but his sage partner, Charlie Munger, says, "Half of Warren's time is spent sitting on his ass reading; the other half is spent talking on the phone or in person to a highly gifted person that he trusts and trusts him." In other words, Buffett has a bias toward inaction. Most other stockholders would also be better off

financially if they also employed a "buy-and-hold" approach as opposed to trying to time the market.

A bias toward inaction can also reap other unexpected benefits. Have you ever been traveling down the freeway and spotted other cars moving over into a more crowded lane? What is occurring is that drivers in the trailing cars believe that the action of the drivers in front of them are based on the knowledge of something that they can't yet see and so they decide to mimic the action. Sometimes there really is something ahead in the road, but often it is the result of nothing more than two cars simultaneously shifting lanes for arbitrary and unrelated reasons. The problem quickly grows, however, as this faulty logic gains momentum and an increasing number of drivers shift lanes, thus creating more "evidence" for others to do the same.

If you want to get ahead on both the freeway and in life, it behooves you to wait to "jump off the log" until you actually have access to compelling information that requires movement.

Homework Assignment 32: For the top five stock holdings in your portfolio, write down your rationale for holding the stock as well as the length you expect to hold it. Next, list the conditions under which you will sell the stock. Before you sell the stock, revisit your notes.

Lesson 33: Shoot "Granny" Style

"It's not what you don't know that hurts you; it's what you know that just ain't so."
— Satchel Paige

Question 33: In both 1995 and 1996, David Justice of the Atlanta Braves had a higher batting average than the New York Yankees, Derek Jeter. Who had the higher two-year average?

The answer is Derek Jeter. The anomaly, known as Simpson's Paradox, occurred because in the first year Jeter had only 48 at bats and 12 hits for an average of .250, while Justice batted 411 times with an average of .253. The following year Jeter batted 582 times and hit for a .314 average, while Justice hit .321 but had only 140 at bats.

In other words, when you combine the players' totals for both years Jeter comes out on top' as the table below demonstrates. In this particular case, Jeter's two-year average was forty points higher.

	1995	1996	Combined
Derek Jeter	12/48 .250	183/582 .314	195/630 **.310**
David Justice	104/411 **.253**	45/140 **.321**	149/551 .270

The sporting world is ripe with unlearning examples. One of my favorites occurred on December 30, 1936, when 17,000 fans crowded into the old Madison Square Garden to watch Long Island University, then the country's top-ranked basketball team, take on Stanford University. It was slated to be a great game. Long Island was putting its forty-three-game winning streak up against the reigning Pacific Coast Conference champions.

More than that, though, people were eager to watch Hank Luisetti, Stanford's star sophomore. What made Luisetti unique is that he was the only player known for shooting the ball with one hand while jumping up in the air. At the time, every other basketball player in the country shot with two hands or took hook shots. Luisetti's jump shot was so radical, in fact, that it caused Nat Holman, the legendary coach of City College of New York (and a man known as "Mr. Basketball") to remark, "That's not basketball! If my boys ever shot one-handed, I'd quit coaching."

Luisetti and Stanford went on to crush Long Island University and, two years later, Luisetti became the first college player ever to score fifty points in a game. Today, it is impossible to find a single player at either the collegiate or professional level who shoots two-handed.

It took a long time for basketball players (and their coaches) to unlearn the two-handed shot, but this story and Jeter/Justice anomaly remind us that unlearning can be both counterintuitive and paradoxical.

To this end, while it is true that a return to two-handed shooting is

unlikely, it may make sense in one area of the basketball court: the free-throw line. Consider the case of Rick Barry. Although Barry used an unorthodox underhand "granny-style" technique for his free throws, he is the National Basketball Association's (NBA) second most accurate free-throw shooter in history with an average of .900. Today, though, not a single player shoots free throws underhand. This is in spite of the fact that the average accuracy rate in the NBA is roughly 75 percent and many games are determined by just a few points.

For those players and coaches with the courage to unlearn their current free-throw shooting style, it could lead to an "above average" outcome because even a modestly higher free-throw average could result in a handful of more victories each season.

Homework Assignment 33: Explain why you think no one in the NBA shoots underhand free throws.

Extra Credit: Name at least two NBA players who may want to unlearn their current form and consider shooting "granny style." (Hint: At 52.4 percent, Shaquille O'Neal is only the second worst free-throw shooter.)

Lesson 34:
Don't Mind Your P's & Q's

"The curious thing is that with these exponential changes, so much of what we currently know is just getting to be wrong. So many of our assumptions are getting to be wrong. As so, as we move forward, not only is it going to be a question of learning, it is also going to be a question of unlearning."
— John Seely Brown

Question 34: On a pond, there is a single lily pad. Every day the number of lily pads doubles. If it takes 30 days for the lily pads to cover the entire pond, how long would it take for the patch to cover half of the pond?

The answer is 29 days.

In his best-selling book *Only the Paranoid Survive*, Andy Grove, then CEO of Intel, recounted the story of his discussion with Gordon Moore regarding the future of the company in the wake of its profits dwindling from $198 million to less than $2 million in the mid-1980s. "I looked out the window at the Ferris wheel of the Great American amusement

park revolving in the distance when I turned back to Gordon, and asked 'If we got kicked out and the board brought in a new CEO, what do you think he would do?' Gordon answered without hesitation, 'He would get us out of memories.' I stared at him, numb, and then said 'Why shouldn't you and I walk out the door, come back, and do it ourselves?'

Grove did exactly that by abandoning the memory market and jumping into the microprocessor market. A few years later Grove made the then-controversial decision to begin branding Intel's technology with the "Intel Inside" slogan. During his tenure, the company grew at an impressive annual compound rate of 30 percent.

Undoubtedly, Grove was an intelligent, capable and visionary leader, but what really lay behind his extraordinary leadership? It was his ability and willingness to unlearn. Before Intel could become a microprocessor company it had to unlearn that it was a memory manufacturer, and before it could adopt an innovative marketing campaign, it had to unlearn the idea that a technology company could only appeal to consumers based on raw computer processing power. In a culture dominated by engineers this was no easy feat.

Unlearning is hard work. In fact, it often requires a brutal act of will. Intel only recovered from Grove's decision after it laid off 8,000 employees and suffered through a one-year loss of $180 million.

Throughout his reign, Grove kept Intel successful by keeping an open mind and displaying a willingness to set aside everything he knew—or

thought he knew. It may be easy to think the semiconductor industry is somehow unique and more responsive to change because the industry's underlying technology (the transistor) is constantly changing (the number of transistors that can be placed on a chip doubles roughly every eighteen months). Perhaps this is true, but it is no reason for complacency.

We now live in an era of accelerating change, and every industry must embrace the concept of unlearning or risk perishing. For example, Wikipedia, the open-source movement, virtual and augmented reality, electronic books, social networking, gaming dynamics and free online courses are whipsawing educational institutions; and yet, amazingly, many teachers and administrators are reluctant to embrace new paradigms and new ways of doing business. Why? It's because they can't unlearn the old ways of doing things. This is true even when confronted with overwhelming proof that the system and its current models aren't working.

Similarly, the health care industry is about to be bombarded with a wealth of new genomics data that will fundamentally alter both patients' and doctors' understanding of diseases. Before the industry can take advantage of these new findings and treatments, medical professionals will need to unlearn much of what they think they know about how diseases are caused and how those ailments are best treated.

Mobile communication, radio frequency identification (RFID) technology, vast networks of "smart" sensors and flexible electronics are poised to revolutionize everything from advertising and marketing to how consumers shop for goods. Unless these related industries can unlearn

some of their current behaviors' they will be at a severe competitive disadvantage to those who aren't wedded to old ways of doing business.

Advances in rapid prototype manufacturing (3-D printing), robotics and material science threaten to disrupt the manufacturing industry. Breakthroughs in solar power, fuel cell technology, demand management tools and other more far-fetched energy technologies such as wave power, synthetic biology and, perhaps, even nuclear fusion could also force energy providers to unlearn what they currently believe to be the most economical, cleanest and convenient energy sources.

Add to this amazing array of technological progress the as-yet-unknown technological advances; combine them with the accelerating power of the Internet, mobile and social communication tools, advanced algorithms and artificial intelligence; and then sprinkle on top of that voice and speech technology, which will help information flow more easily to hundreds of millions of aspiring entrepreneurs all across the globe, and it is easy to understand how many forecasters are predicting a wave of innovation unlike anything ever experienced in the history of humankind.

Like a surfing novice paddling to catch her first wave, the prospect is both thrilling and terrifying. If you approach the wave with an open mind—one that is ready to unlearn and jettison old skills that are no longer suitable for the new environment—your prospects for a successful adventure improve markedly. If you are rigid and cling to your old ways, the wave will either pass you by, leave you far from shore or, worse yet, slam your stiff and inflexible body (and thinking) onto the shoals of future progress.

Returning to Andy Grove now for a moment, if you looked out the window of your office and saw a large wave approaching and it was doubling in size every few moments, what would you do?

Homework Assignment 34: Rank the previously mentioned technologies (computer processing power, wireless technology, RFID, rapid prototype manufacturing, social networking, robotics, genomics, biotechnology and nanotechnology) in terms of their ability to necessitate unlearning within your organization.

Lesson 35: Put on Some Rose-Colored Glasses

"Before people can begin something new, they have to end what used to be and unlearn the old way."
— **William Bridges**

Question 35: Estimate the odds of the following two events:

A. A large flood somewhere in America in which more than one thousand people die.
B. An earthquake in California, causing large flooding, in which more than one thousand people die.

Did you rate the second scenario (B) as being more probable? Many people do even though the first scenario (A) is more likely. If you reflect on the two options for a moment this should be obvious because, as a general condition, Scenario B would naturally also be included under Scenario A.

The reason many people misdiagnose the odds is because the second scenario (a California earthquake) is easy to perceive, whereas the first is

more abstract. In much the same manner, people frequently misdiagnose situations based on their perception. This truism is often characterized as seeing the glass as either half full or half empty. The true impact of this distinction, though, goes far beyond this cliché.

The difference between optimists and pessimists has been succinctly delineated by Martin Seligman, the author of *Learned Optimism*, who explains it thusly: When bad things happen to optimistic people, they tend to see the event as: 1) temporary (limited in duration); 2) external (being caused by something outside their immediate sphere of influence); and 3) specific (affecting only a partial or isolated area of their life). Pessimistic people, by contrast, view negative events as: 1) permanent (or at least lasting a long time); 2) personal (they are somehow to blame); and 3)pervasive (affecting all aspects of their life).

A person's outlook on life—be it optimistic or pessimistic—may seem a matter of personal disposition, but Seligman's research suggests otherwise. Pessimism can be unlearned, and the benefits are not inconsequential because optimists have been found to lead longer, healthier, happier and, ultimately, more successful and fulfilling lives.

Consider just one of Seligman's studies on optimism. In 1985, while working with Metropolitan Life Insurance Company, 15,000 potential applicants took Met Life's regular career profile test along with an Attributional Style Questionnaire (ASQ) that measures optimism. One thousand applicants were hired as salespeople on the basis of the career profile alone. Met Life, however, still had a shortage of insurance agents and took

the unusual step of hiring an additional 100 employees solely on the basis of those who scored in the top half of the ASQ. In other words, they hired only optimistic people for the additional openings.

What Met Life discovered was that the special hires (those who didn't pass muster on its regular career profile) outsold the pessimists in the regular force by 57 percent. This was the result of a few different factors. For starters, optimism helped these people push ahead in the face of failure. Rather than accepting setbacks as a mark of personal failure, they adopted an outlook closer to that of the great inventor Thomas Edison, who once remarked: "I have not failed. I have found 10,000 ways that didn't work." And failure, as we saw in Lesson 9, can have the counterintuitive effect of enhancing the quality of a product (or in this case, a sales pitch) by virtue of continuous improvement.

Optimism also encourages risk. This isn't always a positive trait, but in an era of continuous change, risk-taking can call forth two qualities likely to deliver success in a fast-changing environment: innovation and agility.

Unlearning pessimism merely requires you to adopt an optimistic explanatory style as your default setting when describing undesirable events. Instead of focusing on the negative, strive to put adverse matters in a positive light and, where possible, view them as temporary, external and limited in nature. In other words, put on rose-colored glasses.

Homework Assignment 35: If one were required to compile a list of "the best things that could ever happen," it would be hard

to imagine that "being jilted by a lover" would make the list. To better understand how to adopt a positive explanatory style, explain how being left at the altar by an erstwhile lover could, in fact, come to be described as the best thing that ever happened to a person.

Lesson 36:
See the W**hole** Picture

"We don't see things as they are,
we see them as we are."
— Anais Nin

Question 36: Study the picture below. Do you notice anything unusual?

It is one of the world's most recognizable corporate logos and although most people see it every day, only a small percentage of people have ever noticed the clever arrow hidden between the letters "E" and "x."

It is a fitting analogy for how many people view the world. We like to believe—and, in fact, we're quite confident—that we're seeing the whole picture. Often, though, there is a glaring hole in our knowledge. To this end, did you notice the double entendre in the title of this lesson? Did you see that the word "hole" was bolded in the word "W**hole**"?

What else aren't we seeing? This, of course, is impossible to know because we can't see what we can't see. Nevertheless, it is safe to assume we're seeing less than the complete picture, and it would behoove us to unlearn the assumption that our vision is infallible.

The video "Gorillas in our midst" has become one of the best-known and widely used studies in all of psychology, and it is one I personally use in speeches and keynote presentations all around the world. The thirty-second video shows a group of students passing a basketball back and forth. The six students are divided into two groups with one set wearing white shirts and the other black shirts. Viewers are then invited to count the number of times the students in the white shirts pass the basketball.

Normally about half the audience responds with the correct answer of thirteen. When audience members are then asked if they noticed anything else unusual in the video, typically about 20 percent respond in the affirmative. And when asked what they saw, they will say "a gorilla." The answer usually draws a good laugh from the disbelieving audience. But when invited to watch the video again (this time without concentrating on the basketball passes), they are amazed to see a person dressed in a gorilla suit walk directly onto the screen and into the middle of the students. It then stops, beats its chest and slowly walks off screen. In total, the gorilla is on screen for a full ten seconds.

Many people are so astounded that they could have missed something so blatantly obvious that they believe it is a different video. It is not. The video and the study are a tangible reminder that while people love to be-

lieve they are seeing the whole picture, the reality is that often they are missing large things that are staring them directly in the face.

It is easy to dismiss the video as a clever college psychology experiment with no practical application, but this is far from the case. The emerging field of data mining, for example, is exposing an ever-increasing number of business metrics to new findings that contradict conventional wisdom and people's intuition. In a well-documented case, McDonald's had great difficulty accepting the finding that a large number of its shake buyers weren't interested in the taste, texture or temperature of the milkshake. This wasn't particularly surprising because the vast majority of consultants it hired to study the issue were concentrated on those factors.

By studying the whole picture, one consultant, Gerald Berstell, however, uncovered a surprising fact: Many McDonald's shake buyers were buying shakes in the morning. When he delved into the matter, Berstell discovered these consumers were "hiring" the shake to perform a very specific job. What these buyers really wanted was something they could hold with one hand and wouldn't easily spill (e.g., hot coffee) or stain their clothes (e.g., a sausage McMuffin), and yet provide them some sustenance during their long morning commutes.

Like the gorilla, the data was perfectly clear: Customers were purchasing a large number of shakes in the morning. The problem was that McDonald's and its consultants were focused on the wrong things, such as taste, texture and aroma. Once they were able to unlearn their myopic

view of the world, McDonald's was able to create new marketing opportunities to increase sales of shakes.

The moral? Sometimes the 800-pound gorilla isn't being talked about for the simple reason that no one can see it.

Homework Assignment 36: Data mining is uncovering a wealth of nuggets across a spectrum of industries. Readers interested in learning more are encouraged to pick up a copy of Ian Ayer's outstanding and insightful book *Super Crunchers: Why Thinking the Numbers Is the New Way to Be Smart* in order to understand how data mining can help them see the whole picture—or, should I say, see the hole in their view of the world.

Lesson 37: Tread Cautiously on Thick Ice

"Beware of false knowledge; it is more dangerous than ignorance."
— George Bernard Shaw

Question 37: You are in Las Vegas and are offered a $1 bet in which you have a 99.9 percent chance of winning $10 and a mere 0.1 percent chance of losing $11,000. Would you take the bet?

The odds suggest that if you were to take the bet one thousand times you would win $10 a staggering 999 times. The wise choice, however, would be to refuse. Why? Because the expected gain from your victory is less than your expected loss. In more practical terms, for every ten dollars you bet, you would gain $9.99 but lose $11.

This is an important point because the world is ripe with such asymmetrical situations, and it is important to unlearn the idea that it is not the *frequency* of correctness but rather the *magnitude* of correctness.

I personally experienced such a situation on January 1, 2008. My family and I were staying at a friend's lake cabin in Northern Wisconsin and

after celebrating New Year's Eve with one too many libations, my wife and I decided we were in need of a little exercise. My friend suggested we go snowshoeing across the lake.

My wife, having noticed a thin layer of slush above the ice on the lake, was concerned that the ice wasn't safe. My friend, after drilling through the ice to create an ice-fishing hole, assured her there were eight solid inches of ice and pointed to numerous snowmobilers gliding across the lake on their heavy sleds as visual evidence of the lake's ability to withstand our weight.

Bearing these common-sense points in mind, my wife and I confidently proceeded toward a small island ensconced in the middle of the lake. Once there, we continued across a marshy area until we heard a crack. Before we could stop to assess the situation, my wife had broken through the ice.

Luckily, I was standing on solid ground and she only plunged up to her waist before grabbing hold of the ice edge. After a fearful minute, I assisted her out of the water and onto solid ground. We then hastily made a beeline back across the lake—careful to follow our precise tracks back to the warmth and safety of the cabin.

In retrospect, everyone involved in the situation made the mistake of confusing the probability of falling through the ice (which was admittedly small) with the magnitude of the consequences of falling through the ice. (Had my wife and I both been just a few feet farther to the left, the outcome could have been fatal.)

In his book *Think Twice* (which cleverly and appropriately has the double entendre of "thin ice" in the title), Michael Mauboussin encourages people to focus on process and not outcomes when making decisions that involve probability.

Returning to the opening question, a focus on outcome leads a person to take a $10 bet with a chance of winning 999 out of 1,000 times because they will win an overwhelming percentage of the time. A focus on process suggests the decision is still a poor one because the magnitude of the rare possibility of losing $11,000 outweighs the benefits.

In other words, even if the thickest layer of ice has a remote chance of being thin somewhere, it behooves you to think twice about crossing it because the result could be a cold and painful dose of reality.

(Please note that this habit of focusing on process versus outcome is not inherently conservative, nor does it eschew risk taking. Quite to the contrary, if the odds were reversed so that you lost ten dollars 99.9 percent of the time but won $11,000 just 0.1 percent of the remaining time, it would be a good bet.)

Homework Assignment 37: Nine of your ten board members believe your company's sales will grow a modest 3 percent this year, but one board member estimates sales will plummet 50 percent. How do you modify your strategic plans to account for this possibility?

Lesson 38: Develop a Healthy Dose of Unconfidence

"There is a huge difference between what people actually know and how much they think they know."
— Nassim Taleb

Question 38: In his book *Super Crunchers: Why Thinking-By-Numbers Is the New Way to Be Smart*, Ian Ayres writes, "People think they know more than they actually know." To prove this point, he asks his readers to answer 10 questions such that they are 90 percent confident that their answer is correct. For example, if asked, "What is the length of the Mississippi River in miles?" you would respond by setting the parameters to your answer between any two figures (of your own choosing) so long as you were 90 percent confident the correct answer would fall somewhere between those two figures. In this case, even if you don't know the precise length of America's longest river, you may be 90 percent confident the correct answers falls somewhere between a low of 500 miles and a high of 5,000 miles. (The correct answer is 2,320 miles.)

Now take a minute to answer the following 10 questions:

	Low	High
1. What is the length of the Nile River in miles?	____	____
2. What was Martin Luther King Jr.'s age at death?	____	____
3. How many countries belong to OPEC?	____	____
4. How many books are there in the Old Testament?	____	____
5. What is the diameter of the moon in miles?	____	____
6. What is the weight of an empty Boeing 747 in pounds?	____	____
7. In what year was Mozart born?	____	____
8. What is the gestation of an Asian elephant in days?	____	____
9. What is the air distance from London to Tokyo in miles?	____	____
10. What is the deepest known point in the ocean in feet?	____	____

The answers are listed below. Did you get at least nine answers correct? You should have; after all, you were allowed to set your own confidence parameters. If not, don't worry—you're not alone. Most people get a lot more than one answer wrong because they are overconfident in their knowledge. More often than not we know less than we think we know.

This finding should lead most people to have some intellectual humility. It also points out that one of the first things worthy of unlearning may be our artificially high level of confidence in our knowledge.

The trait of overconfidence takes on a more ominous note when we are asked to judge ourselves. For example, did you know that 94 percent of all university professors rank themselves in the top fiftieth percentile of teachers? Pure statistics dictates that 44 percent of these ivory-tower academics are deluding themselves about their skills. It is, of course, easy to

poke fun at arrogant university professors, but overconfidence abounds almost everywhere. When asked if they are better drivers, athletes, spouses or lovers, most people grade themselves above average. (They can't all be correct unless they hail from Lake Wobegon where "all the children are above average.")

Developing a healthy dose of unconfidence may sound like an unhealthy thing to do but, counterintuitively, it isn't. Instead, it will lead to a more accurate assessment of one's knowledge and skills, and this self-knowledge can be used to identify those areas of knowledge and skills that most need improvement.

Homework Assignment 38: According to you and your management team, which aspects of your business are you 90 percent confident are immune to economic, social, financial, political and technological forces? Now review the list and consider the implications if one or more is not only wrong but way off base.

Extra Credit: Make a list of economic, social, political, financial and technological changes that could influence your business in the next three years.

(Answers: (1) 4,187 miles; (2) 39 years; (3) 13 countries; (4) 39 books; (5) 2,160 miles; (6) 390,000 pounds; (7) 1756; (8) 645 days; (9) 5,959 miles; (10) 36,198 feet.)

Lesson 39: Ignorance Isn't Bliss, but It May Hold the Key to Wisdom

"The greater our knowledge increases
the more our ignorance unfolds."
– President John F. Kennedy

Question 39: Where is the universe expanding to?

The honest answer is that nobody is entirely sure. According to Einstein's theory of general relativity, the space-time continuum cannot remain stationary and must either expand or contract; and, since there is no indication the universe is currently collapsing upon itself, it is believed the universe is expanding. But this begs the obvious question posted above: What is our universe expanding into?

One leading theory encourages people to think of the universe as an expanding balloon with its billions of galaxies as dots on the outer surface of the balloon. From this perspective, it may appear as though the galaxies are moving away from one another, but actually they remain in the same relative position (i.e., the same longitude and latitude on the balloon), and it is only the fabric that is expanding.

It is, to say the least, an unsatisfying answer and it may even be proven to be wildly off base at some point in the future. In fact, some string theorists believe there may be eleven or more dimensions and our universe is but one "balloon" in a weird and sorted pack of balloons. Not withstanding this possibility, the notion of an expanding universe is a fitting metaphor upon which to end this book on unlearning.

As the quotation from President Kennedy that started this chapter (which he spoke in his famous speech declaring it America's goal to place a man on the moon and safely return him), the idea that our ignorance is unfolding faster than we can acquire knowledge is a cold, hard fact.

This sounds like a depressing statement and, perhaps, it is; but it is one that anyone serious about unlearning must embrace. To understand, consider the sheer growth of scientific and technical knowledge. As smart, intelligent or knowledgeable as any person or organization may be about continued advances in information technology, biotechnology, nanotechnology and the countless other fields and disciplines that populate our world, it is impossible to keep abreast, let alone make sense of all of this new knowledge.

In other words, even as our knowledge increases, it is a sure bet our ignorance—or that which we don't know—will grow even faster. And it is a certainty that contained within this growing category of unknown knowledge will be new knowledge that will require unlearning that old knowledge which has become obsolete.

The challenge was wonderfully captured in this quotation from Henry

David Thoreau, who once said, "How can we remember our ignorance, which our growth requires, when we are using our knowledge all the time?"

The answer is that we needn't stop using our knowledge. That's not only impractical, it's foolish. Rather, the solution is to keep our ignorance—our growing ignorance—top of mind. We must always strive to be intellectually humble and remain cognizant of "what we don't know."

And what, precisely, is the benefit in acknowledging our ignorance? It may be real knowledge. Over two thousand years ago, Confucius said, "Real knowledge is to know the extent of one's ignorance."

It may even be wisdom. Olin Miller, a veritable quotation machine but about whom little else is known, once quipped, "If you realize you aren't so wise today as you thought you were yesterday, you are wiser today."

More simply put, by acknowledging all that you *don't know* today, you may just become wiser tomorrow—and well into the future.

Homework Assignment 39: What do you think Lao Tzu meant when he wrote: "To attain knowledge, add things every day. To attain wisdom, subtract things every day"? Now, find one thing to subtract today—and continue to do so every day into the future.