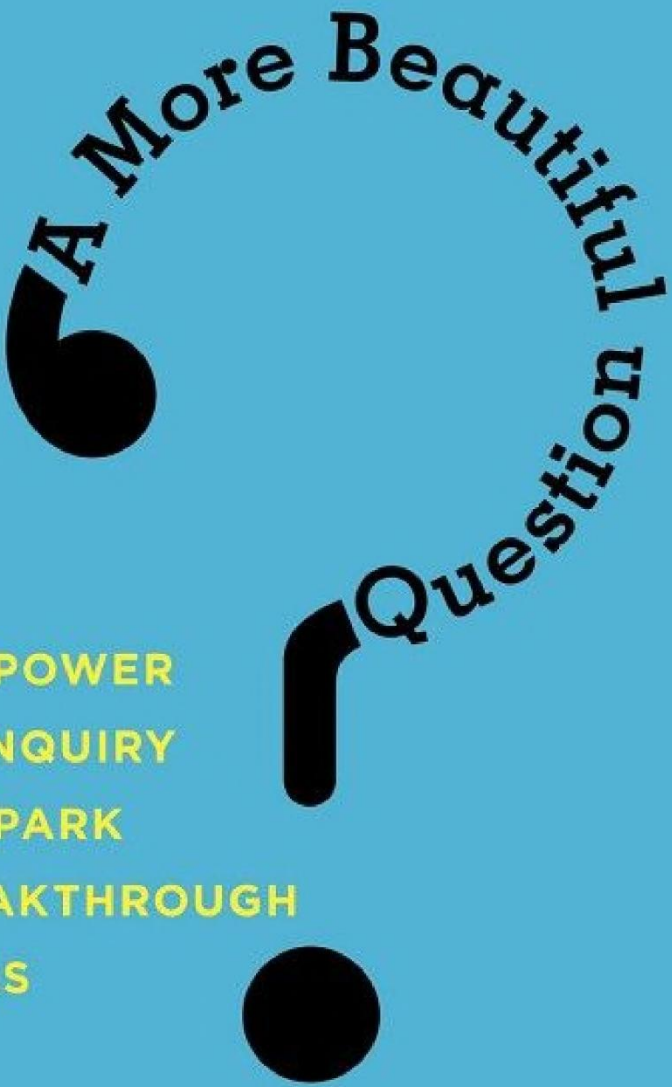
"Deep and challenging and useful."
—SETH GODIN

"Thoughtful, provocative."
—DANIEL PINK



THE POWER OF INQUIRY TO SPARK BREAKTHROUGH IDEAS

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BLOOMSBURY

Contents

INTRODUCTION

Why Questioning?

As a journalist, I've been asking questions my whole professional life. But until a few years ago, I hadn't thought much about the art or the science of questioning. And I never considered the critical role questioning plays in enabling people to innovate, solve problems, and move ahead in their careers and lives.

That changed during my work[1] on a series of articles, and eventually a book, on how designers, inventors, and engineers come up with ideas and solve problems. My research brought me in contact with some of the world's leading innovators and creative minds. As I looked at how they approached challenges, there was no magic formula, no single explanation, for their success. But in searching for common denominators among these brilliant change-makers, one thing I kept finding was that many of them were exceptionally good at asking

questions.

For some of them, their greatest successes—their breakthrough inventions, hot start-up companies, the radical solutions they'd found to stubborn problems—could be traced to a question (or a series of questions) they'd formulated and then answered.

I thought this was intriguing, but it only had a small part in the book I was working on, so I tucked the idea away. Subsequently, I began to notice—as is often the case when something has come onto your radar—that questioning seemed to be everywhere I looked. In the business world, for instance, as I interviewed corporate executives for my writing in *Harvard Business Review* and *Fast Company*, I found a great deal of interest in questioning. Many businesspeople seemed to be aware, on some level, of a link between questioning and innovation. They understood that great products, companies, even industries, often begin with a question. It's well-known that Google, as described by its chairman, is a company that "runs on questions,"[2] and that business stars such as the late Steve Jobs of Apple and Amazon's Jeff Bezos made their mark by

questioning everything.

Yet, as I began to explore this subject within the business sector, I found few companies that actually encouraged questioning in any substantive way. There were no departments or training programs focused on questioning; no policies, guidelines, best practices. On the contrary, many companies—whether consciously or not—have established cultures that tend to discourage inquiry in the form of someone's asking, for example, *Why are we doing this particular thing in this particular way?*

Much the same could be said about schools. Here again, as I talked to educators, I found a genuine interest in the subject—many teachers acknowledge it's critically important that students be able to formulate and ask good questions. Some of them also realize that this skill is apt to be even more important in the future, as complexity increases and change accelerates. Yet, for some reason, questioning isn't taught in most schools—nor is it rewarded (only memorized answers are).

In talking to social entrepreneurs working on big, thorny global problems of poverty, hunger,

and water supply, I found that only a few rare innovators were focused on the importance of asking the right questions about these issues. For the most part, the old, entrenched practices and approaches tend to hold sway. The nonprofit sector, like much of industry, is inclined to keep doing what it has done—hence, well-meaning people are often trying to solve a problem by answering the wrong question.

In a way, this is true of all of us, in our everyday lives. The impulse is to keep plowing ahead, doing what we've done, and rarely stepping back to question whether we're on the right path. On the big questions of finding meaning, fulfillment, and happiness, we're deluged with answers—in the form of off-the-shelf advice, tips, strategies from experts and gurus. It shouldn't be any wonder if those generic solutions don't quite fit: To get to *our* answers, we must formulate and work through the questions ourselves. Yet who has the time or patience for it?

On some level, we must know—as the business executive knows, as the schoolteacher knows—that questions are important and that we should be paying more attention to them,

especially the meaningful ones. The great thinkers have been telling us this since the time of Socrates. The poets have waxed on the subject: E. E. Cummings, from whom I borrowed this book's title, wrote, *Always the beautiful answer / who asks a more beautiful question*. Artists from Picasso to Chuck Close have spoken of questioning's inspirational power. (This great quote from Close was featured recently on the site BrainPickings: "Ask yourself an interesting enough question[3] and your attempt to find a tailor-made solution to that question will push you to a place where, pretty soon, you'll find yourself all by your lonesome—which I think is a more interesting place to be.")

Scientists, meanwhile, have been great proponents of questioning, with Einstein among the most vocal champions. He was asking smart questions from age four (when he wondered why the compass pointed north), and throughout his life Einstein saw curiosity as something "holy." Though he wondered about a great many things, Einstein was deliberate in choosing which questions to tackle: In one of his more well-traveled quotes—which he may or may not have actually said—he reckoned that if he had an

hour[4] to solve a problem and his life depended on it, he'd spend the first fifty-five minutes making sure he was answering the right question.

With so much evidence in its favor and with everyone from Einstein to Jobs in its corner, why, then, is questioning underappreciated in business, undertaught in schools, and underutilized in our everyday lives?

Part of it may be that we see questioning as something so fundamental and instinctive that we don't need to think about it. "We come out of the womb questioning," noted the small-schools-movement pioneer Deborah Meier. And it's true—any preschooler can ask questions easily and profusely. A recent study found the average[5] four-year-old British girl asks her poor mum 390 questions a day; the boys that age aren't far behind. So then, it might be said that questioning is like breathing: It's a given, an essential and accepted part of life, and something that anyone, even a child, can do.

Yet chances are, for the rest of her life, that four-year-old girl will never again ask questions as instinctively, as imaginatively, or as freely as

she does at that shining moment. Unless she is exceptional, that age is her questioning peak.

This curious fact, in and of itself, gives rise to all sorts of questions.

Why does that four-year-old girl begin to question less at age five or six?

What are the ramifications of that, for her and for the world around her?

And if, as Einstein tells us, questioning is important, why aren't we trying to stem or reverse that decline by finding ways to keep questioning alive?

On the other hand, that four-year-old may turn out to be an exception; she may be one of the rare people who *doesn't* stop questioning, like Bezos and Jobs, or like one of the "master questioners" featured in this book. And if that's the case, well, that raises questions, too.

Why do some keep questioning, while others stop? (Was it something in the genes, in the schools, in the parenting?)

And if we look at the questioners versus the nonquestioners, who seems to be coming out ahead?

The business world has a kind of love/hate relationship with questioning. The business-innovation guru Clayton Christensen[6]—himself a master questioner—observes that questioning is seen as "inefficient" by many business leaders, who are so anxious to *act*, to *do*, that they often feel they don't have time to question just what it is they're doing.

And those not in leadership roles frequently perceive (often correctly) that questioning can be hazardous to one's career: that to raise a hand in the conference room and ask "Why?" is to risk being seen as uninformed, or possibly insubordinate, or maybe both.

Yet—as recently documented in a fascinating research study of thousands of top business executives—the most creative, successful business leaders have tended to be expert questioners. They're known to question the conventional wisdom of their industry, the fundamental practices of their company, even

the validity of their own assumptions. This has not slowed their rise in business—rather, it has "turbocharged" it,[7] to quote Hal Gregersen, a business consultant and INSEAD professor who, along with Christensen and another business professor, Jeff Dyer, coauthored the research showing questioning to be a key success factor among innovative executives.

Indeed, the ability to ask the right questions has enabled business leaders to adapt in a rapidly changing marketplace, Gregersen notes. Inquiring minds can identify new opportunities and fresh possibilities before competitors become aware of them. All of which means that, whereas in the past one needed to appear to have "all the answers" in order to rise in companies, today, at least in some enlightened segments of the business world, the corner office is there for the askers.

Considering all of this, one almost can't help but ask the following:

If we know (or at least strongly suspect) that questioning is a starting point for innovation, then why doesn't business embrace it?

Why don't companies train people to question and create systems and environments that would encourage them to keep doing so?
And if companies were *to do this, how might they go about it?*

Regarding those first two questions, one possible answer—and it may also apply to similar questions about why nonprofit organizations don't question more, and why schools don't teach or encourage questioning—is that questions challenge authority and disrupt established structures, processes, and systems, forcing people to have to at least *think* about doing something differently. To encourage or even allow questioning is to cede power—not something that is done lightly in hierarchical companies or in government organizations, or even in classrooms, where a teacher must be willing to give up control to allow for more questioning.

Anything that forces people to have to think is not an easy sell, which highlights the challenge of questioning in our everyday lives—and why

we don't do it as much as we might or should. Clearly, it is easier (and more "efficient," as a nonquestioning business executive might say) to go about our daily affairs without questioning everything. It's natural and quite sensible to behave this way. The neurologist John Kounios observes[8] that the brain finds ways to "reduce our mental workload," and one way is to accept without question (or even to just ignore) much of what is going on around us at any time. We operate on autopilot—which can help us to save mental energy, allow us to multitask, and enable us to get through the daily grind.

But when we want to shake things up and instigate change, it's necessary to break free of familiar thought patterns and easy assumptions. We have to veer off the beaten neural path. And we do this, in large part, by questioning.

With the constant change we face today, we may be forced to spend less time on autopilot, more time in questioning mode—attempting to adapt, looking to re-create careers, redefining old ideas about living, working, and retiring, reexamining priorities, seeking new ways to be creative, or to solve various problems in our own lives or the lives of others. "We've transitioned

into always transitioning,"[9] according to the author and futurist John Seely Brown. In such times, the ability to ask big, meaningful, beautiful questions—and, just as important, to know what to *do* with those questions once they've been raised—can be the first steps in moving beyond old habits and behaviors as we embrace the new.

How can we develop and improve this ability to question? Can we rekindle that questioning spark we had at age four? During my conversations and visits with more than a hundred business innovators, scientists, artists, engineers, filmmakers, educators, designers, and social entrepreneurs, they shared methods of asking questions and solving problems. Some shared stories of how questioning guided their careers or their businesses. Others recounted how a particular question helped change their life. Many offered insights, techniques, and tips on the art of inquiry.

Based on their experience—while also borrowing ideas and influences from existing theories of creativity, design thinking, and problem solving—I devised a three-part Why–

What If–How model for forming and tackling big, beautiful questions. It's not a formula, per se—there is no formula for questioning. It's more of a framework designed to help guide one through various stages of inquiry—because ambitious, catalytic questioning tends to follow a logical progression, one that often starts with stepping back and seeing things differently and ends with taking action on a particular question.

A journey of inquiry that (hopefully) culminates in change can be a long road, with pitfalls and detours and often nary an answer in sight. That's why it can be helpful to approach inquiry systematically, as a step-by-step progression. The best innovators are able to live with not having the answer right away because they're focused on just trying to get to the next question.

This book is structured around questions, with one leading to another. Forty-four questions divide up sections within the chapters, and lots more questions are embedded within each section. The thirty "question sidebars" scattered throughout the book tell stories of breakthrough ideas, innovations, or new ways of thinking that began with a powerful (and sometimes offbeat)

question. A “Question Index” is at the back of the book—because if facts are entitled to an index, then why not questions?

As to what, exactly, constitutes a “beautiful question”: When I first launched the idea behind this book as the blog A More Beautiful Question, I laid out the following entirely subjective definition:

> A beautiful question is an ambitious yet actionable question that can begin to shift the way we perceive or think about something—and that might serve as a catalyst to bring about change.

That definition makes clear that this book is *not* about grand philosophical or spiritual questions —*Why are we here? How does one define “good”? Is there life after death?*—all of those great questions that spark endless, impassioned debate. I am not particularly qualified to discuss such questions, nor do they fit within the category of what I would call actionable questions.

The focus here is on questions that can be acted upon, questions that can lead to tangible

results and change. The esteemed physicist Edward Witten[10] told me that in his work he is always searching for "a question that is hard (and interesting) enough that it is worth answering and easy enough that one can actually answer it."

We don't often ask such questions; they're not the kind of queries typically typed into the Google search box. While it could be said that ours is a Golden Age of Questioning—with all the online resources now available for getting instant answers, it's reasonable to assume people are asking more questions than ever before—that distinction would be based purely on volume, not necessarily on the quality or thoughtfulness of the questions being asked. Indeed, on Google, some of the most popular queries[11] are which celebrity is or isn't gay. In many cases, our Google queries are so unimaginative and predictable that Google can guess what we're asking before we're three words into typing it.

This book is more concerned with questions that Google cannot easily anticipate or properly answer for you—questions that require a different kind of search. *What is the fresh idea*

that will help my business stand out? What if I come at my work or my art in a whole different way? How might I tackle a long-standing problem that has affected my community, my family? These are individualized, challenging, and potentially game-changing questions.

In my inquiry into the value of inquiry, I've become convinced that questioning is more important today than it was yesterday—and will be even more important tomorrow—in helping us figure out what matters, where opportunity lies, and how to get there. We're all hungry for better answers. But first, we need to learn how to ask the right questions.

CHAPTER 1

The Power of Inquiry

If they can put a man on the moon, why can't they make a decent foot?

What can a question do?

What business are we in now—and is there still a job for me?

Are questions becoming more valuable than answers?

Is "knowing" obsolete?

Why does everything begin with Why?

How do you move from asking to action?

If they can put a man on the moon, why can't they make a decent foot?

Back in 1976, long before there[1] was a Google to field all of our queries, a young man named Van Phillips started asking the question above, first in his head and then aloud. Phillips felt his future depended upon finding a good answer, and no one seemed to have one for him.

He was twenty-one years old and had been living the charmed life of an athletic, handsome, and bright young college student. But one day in the summer of that year, Phillips's fortunes changed. He was water-skiing on a lake in Arizona when a small fire broke out on the boat pulling him. In the ensuing confusion, the boat's driver didn't see that a second motorboat, coming around a blind curve in the lake, was headed straight at Phillips.

Phillips awoke from anesthesia the next morning in a hospital. He recalls, "I did the proverbial 'I don't want to look, but let's see'" and checked under his blanket to find "an empty place where my left foot should have been." The limb had been severed, just below the knee, by the other boat's propeller.

At the hospital, Phillips was fitted with "a pink foot attached to an aluminum tube." The "foot" wasn't much more than a block of wood with

foam rubber added; such was the state of prosthetic limbs at the time. Phillips left the hospital with instructions: Get used to your "new best friend," walk on it twice a day, and "toughen up that stump." One of the first times he tried to walk on the foot, Phillips recalls, he tripped "on a pebble the size of a pea." He knew, right then, this was not going to work for him. He recalls visiting his girlfriend's parents' house around that time, and being taken aside by her father, who said, "Van—you're just going to have to learn to accept this." When he heard that, Phillips recalls, "I bit my tongue. I knew he was right, in a way—I did have to accept that I was an amputee. But I would *not* accept the fact that I had to wear this foot."

At that moment, Phillips exhibited one of the telltale signs of an innovative questioner: a refusal to accept the existing reality. He'd shown other signs before that in childhood—as a kid, he once went through his house and removed all the doorknobs (mischievous *What If I take this apart?* childhood stories are common among questioners). But now, as an adult, he was experiencing a critical Why moment, as in *Why*

should I settle for this lousy foot?

This did not seem an unreasonable question to Phillips, particularly since he was very aware—as was everyone else at the time—that amazing things were happening in the world of technology, particularly in the U.S. space program. Hence, he naturally wondered why some of the vast means and know-how that enabled a man to walk on the moon couldn't somehow be applied to his down-to-earth problem.

What he hadn't thought of at that time—it would become clear to him later, as he got to know more about the field of prosthetics—was that some problems do not have governments or large corporations rushing to solve them. The prosthetics industry had been "in a time warp for decades," Phillips recalls. No one was investing in it because the customer base, amputees, was no one's idea of an attractive business market. "But this worked to my advantage in a way," Phillips told me, years later. Since progress had been stalled for so long, it left plenty of room to question outdated approaches and status quo practices—and to inject much-needed fresh thinking.

Still, Phillips quickly found, as a naïve questioner sometimes does, that his Why and What If inquiries weren't particularly welcome in the realm of What Is. Frequently in various professional domains—in hospitals or doctors' offices, in business conference rooms, even in classrooms—basic, fundamental questions can make people impatient and even uncomfortable. Phillips's questions about why there weren't better prosthetic limbs, and whether that could be changed, could be taken as a challenge to the expertise of those who knew far more than he did on the subject—the doctors, the prosthetics engineers, and others who understood "what was possible" at the time.

As an outsider in that domain, Phillips was actually in the best position to ask questions. One of the many interesting and appealing things about questioning is that it often has an inverse relationship to expertise—such that, within their own subject areas, experts are apt to be poor questioners. Frank Lloyd Wright put it well when he remarked that an expert is someone who has "stopped thinking because he 'knows.'"[2] If you "know," there's no reason to ask; yet if you *don't* ask, then you are relying on

“expert” knowledge that is certainly limited, may be outdated, and could be altogether wrong.

Phillips was not going to convince the experts that he knew better (and in fact, he didn’t “know” better—he only suspected). Somewhere along the line, he took another critical step for a questioner tackling a challenge: He took ownership of that question, *Why can’t they make a better foot?* To do this, he had to make a change of pronouns: Specifically, he had to replace *they* with *I*.

This is an important concept, as explained by the small, independent inventor and inveterate questioner Mark Noonan, who once, after suffering[3] his umpteenth backache from shoveling snow, wondered, *Why don’t they come up with a better shovel?* Noonan solved the problem himself, inventing a shovel with a long handle, a lever, and a wheel—when you use it, you no longer have to bend your back. Noonan observes that if you never actually *do* anything about a problem yourself, then you’re not really questioning—you’re complaining. And that situation you’re complaining about may never

change because, as Regina Dugan, a former Defense Advanced Research Projects Agency (DARPA) director, has observed about problems in general, “We think someone else—someone smarter[4] than us, someone more capable, with more resources—will solve that problem. But there isn’t anyone else.”

When Van Phillips realized that he was going to have to answer his own question, he also understood, almost immediately, that to inquire about prosthetics in a meaningful way he would have to wade into that world. He had been a broadcast major in college, but now changed directions and enrolled in one of the top prosthetics study programs in the United States, at Northwestern University, from whence he found work in a prosthetics lab in Utah. He began to understand how and why prosthetic limbs were designed the way they were.

He would spend nearly a decade grappling with his original question, then forming new ones, and eventually acting upon those. Phillips’s journey of inquiry led him to some unusual places: He extracted lessons from the animal kingdom and borrowed influences from his local swimming pool as well as from the

battlefields of ancient China.

In his pursuit of a better foot, he faltered many times—literally, he fell to the ground again and again. This would happen as he was trying to answer his latest question (*I wonder if this prototype will hold up better than the last one?*) by taking it for a test run. He would receive his disappointing answer each time the new version of the foot broke under him. He would curse and swear, and then, inevitably, he would begin to ask new questions—attempting to understand and learn from each of his failures.

Then one day, the foot under him didn't break. And Phillips knew, at that moment, that he was about to change the world.

What can a question do?

The Pulitzer Prize–winning historian David Hackett Fischer observed that questions "are the engines of intellect[5]—cerebral machines that convert curiosity into controlled inquiry." Fischer's "engine" is just one of many metaphors that have been used to try to describe the

surprising power that questions have. Questions are sometimes seen as spades that help to unearth buried truths; or flashlights that, in the words of Dan Rothstein of the Right Question Institute (RQI), “shine a light on where you need[6] to go.”

The late Frances Peavey, a quirky,[7] colorful social activist whose work revolved around what she called “strategic questioning” aimed at bridging cultural differences between people, once observed that a good question is like “a lever used to pry open the stuck lid on a paint can.”

Maybe we talk about what a question is *like* because it’s hard to wrap our minds around what it actually is. Many tend to think of it as a form of speech—but that would mean if you didn’t utter a question, it wouldn’t exist, and that’s not the case. A question can reside in the mind for a long time—maybe forever—without being spoken to anyone.

We do know that the ability to question, whether verbally or through other means, is one of the things that separates us from lower primates. Paul Harris, an education professor[8] at Harvard University who has studied questioning

in children, observes, “Unlike other primates, we humans are designed so that the young look to the old for cultural information.” He sees this as an important “evolutionary divide”—that from an early age, even before speech, humans will use some form of questioning to try to gain information. A child may pick up a kiwi fruit and indicate, through a look or gesture directed at a nearby adult, a desire to know more. Chimpanzees don’t do this; they may “ask” for a treat through signaling, but it’s a simple request for food, as opposed to an information-seeking question.

So then, one of the primary drivers of questioning is an awareness of what we don’t know—which is a form of higher awareness that separates not only man from monkey but also the smart and curious person from the dullard who doesn’t know or care. Good questioners tend to be aware of, and quite comfortable with, their own ignorance (Richard Saul Wurman, the founder of the TED Conferences, has been known to brag, “I know more about my ignorance[9] than you know about yours”). But they constantly probe that vast ignorance using the question flashlight—or, if you prefer, they

attack it with the question spade.

The author Stuart Firestein, in his[10] fine book *Ignorance: How It Drives Science*, argues that one of the keys to scientific discovery is the willingness of scientists to embrace ignorance—and to use questions as a means of navigating through it to new discoveries. “One good question can give rise to several layers of answers, can inspire decades-long searches for solutions, can generate whole new fields of inquiry, and can prompt changes in entrenched thinking,” Firestein writes. “Answers, on the other hand, often end the process.”

This expansive effect of questions has been studied by Dan Rothstein, who along with his colleague Luz Santana established the Right Question Institute, a small and fascinating nonprofit group formed in order to try to advance the teaching of questioning skills. Rothstein believes that questions do *something*—he is not sure precisely what—that has an “unlocking” effect in people’s minds. “It’s an experience we’ve all had at one point or another,” Rothstein maintains. “Just asking or hearing a question phrased a certain way produces an almost palpable feeling of discovery and new

understanding. Questions produce the lightbulb effect."

How might we prepare during peacetime to offer help in times of war?[12]

The exigencies of war have brought forth many a beautiful question. In 1859, a young Swiss Calvinist named Henry Dunant traveling in Italy came upon the aftermath of a bloody battle between the Austrian and French armies. On the battlefield some forty thousand men lay dead or wounded, and Dunant hastily organized the locals in binding wounds and feeding the injured. Upon his return home, Dunant wrote: *"Would there not be some means, during a period of peace and calm, of forming relief societies whose object would be to have the wounded cared for in time of war by enthusiastic, devoted volunteers, fully qualified for the task?"* And thus the Red Cross national relief societies were born. The subsequent idea of pooling the skills and resources of various Red Cross Societies to provide humanitarian assistance in peacetime, and not just during war, also was championed by Dunant.

Rothstein has seen this phenomenon at work in classrooms where students (whether adults or children) are instructed to think and brainstorm using only questions. As they do this, Rothstein says, the floodgates of imagination seem to open up. The participants tend to become more

engaged, more interested, in the subject at hand; the ideas begin to flow, in the form of questions. *Harvard Business Review* writer Polly LaBarre[11] echoes this in describing the effect that lively and imaginative questioning can have in business settings: Such questions can be "fundamentally subversive, disruptive, and playful" and seem to "switch people into the mode required to create anything new."

How do questions do this? The neurologist and author Ken Heilman,[13] a leading expert on creative activity in the brain, acknowledges that scant research has been focused on what's happening in the brain when we ask questions. Neurologists these days can tell us what's going on in the cerebral cortex when we daydream, watch a commercial, or work on a crossword puzzle, but, strangely, no one has much to say about the mental processes involved in forming and asking a question. However, Heilman points out, there *has* been significant neurological study of divergent thinking—the mental process of trying to come up with alternative ideas. Heilman notes, "Since divergent thinking is about saying, 'Hey, what if I think differently about this?' it's

actually a form of asking questions."

What we know about divergent thinking is that it mostly happens in the more creative right hemisphere of the brain; that it taps into imagination and often triggers random association of ideas (which is a primary source of creativity); and that it can be intellectually stimulating and rewarding. So to the extent that questioning triggers divergent thinking, it's not surprising that it can have the kind of mind-opening effect that Rothstein has observed in classrooms using RQI's question-based teaching.

Rothstein points out, however, that questions not only open up thinking—they also can direct and focus it. In his exercises, students may begin with wide-open, divergent "what-if" speculation, but they gradually use their own questions to do "convergent" (focused) thinking as they get at the core of a difficult problem and reach consensus on how to proceed. They even use questions for "meta cognitive thinking," as they analyze and reflect upon their own questions. "People think of questioning as simple," Rothstein says, but when done right, "it's a very sophisticated, high-level form of

there still a job for me?

One of the most important things questioning does is to enable people to think and act in the face of uncertainty. As Steve Quatrano of the Right Question Institute puts it, forming questions helps us "to organize our thinking around[18] what we *don't* know." This may explain why questioning is so important in innovation hotbeds such as Silicon Valley, where entrepreneurs must figure out, seemingly daily, how to create new products and businesses from thin air, while navigating highly competitive, volatile market conditions.

Sebastian Thrun, the engineer/inventor[19] behind Google's experimental self-driving X car and the founder of the online university Udacity, acknowledges the two-way relationship between technological change and questioning. The changes are fueled by the questions being asked—but those changes, in turn, fuel more questions. That's because with each new advance, Thrun said, one must pause to ask, *Now that we know what we now know, what's possible* now*?*

In some sense, innovation means trying to find and formulate new questions that can, over time, be answered. Those questions, once identified, often become the basis for starting a new venture. Indeed, the rise of a number of today's top tech firms—Foursquare, Airbnb, Pandora Internet Radio—can be traced to a *Why doesn't somebody* or *What if we were to* question, in some cases inspired by the founder's personal experience.

One such example, which has become a modern classic business story, is the origin of the Netflix video-rental service. The man who would go on to start the company, Reed Hastings, was reacting to one[20] of those frustrating everyday experiences we've all had. Hastings had been lax in returning some movies rented from a Blockbuster video store, and by the time he got around to it, the late charges were exorbitant. A frustrated Hastings wondered, *Why should I have to pay these fees?* (He has admitted that another question on his mind at the time was *How am I going explain this charge to my wife?*)

Surely, others have been similarly outraged by

The glut of knowledge has another[27] interesting effect, as noted by author Stuart Firestein: It makes us *more* ignorant. That is to say, as our collective knowledge grows—as there is more and more to know, more than we can possibly keep up with—the amount that the individual knows, in relation to the growing body of knowledge, is smaller.

The good news, Firestein notes, is that there is more ignorance for us to explore. There are more "collectively known" things that we, as individuals, can learn about and a vast expanse of unknown things we could, potentially, discover. Overall, there's more darkness into which we can shine that "question flashlight."

Another way to think of it is that as we increasingly find ourselves surrounded by the new, the unfamiliar, and the unknown, we're experiencing something not unlike early childhood. Everywhere we turn, there's something to wonder and inquire about. MIT's Joi Ito says that as we try to come to terms with a new reality that requires us to be lifelong learners (instead of just early-life learners), we must try to maintain or rekindle the curiosity,

sense of wonder, inclination to try new things, and ability to adapt and absorb that served us so well in childhood. We must become, in a word, *neotenous* (*neoteny* being a biological term that describes the retention of childlike attributes in adulthood). To do so, we must rediscover the tool that kids use so well in those early years: the question. Ito puts it quite simply: “You don’t learn unless you question.”

Questions trump answers: Some people have been saying this for a while, among them John Seely Brown. The former chief scientist at Xerox Corporation, Brown headed up its famous Palo Alto Research Center (PARC) for years. More recently, as cofounder of an innovation think tank known as the Deloitte Center for the Edge, Brown advises some of the world’s leading companies on how to keep pace in a turbulent environment. He has also written about how our approach to education must be completely rethought, in light of what he calls the “exponential change” that is upon us.

Things are changing so fast, Brown told me, “I have to reframe how I even think about using all of this technology. I find myself asking all kinds

of fundamental questions. And as I do that, I eventually realize that the lenses I'm looking through to see the world around me are wrong—and that I have to construct a whole new frame of reference."

What if we could paint over our mistakes?[28]

When electric typewriters became popular in the 1950s, the ribbons made it harder to erase typing errors—a problem noticed by Bette Nesmith Graham. Graham worked two jobs: bank secretary (and heavy typist) by day, commercial artist at night. One night while doing artwork, she wondered, *What if I could paint over my mistakes when typing, the way I do when painting?* She filled a small bottle with a paint and water formula and brought it to the office. Her "miracle mixture" made it easy to cover over typing errors, and soon Graham was supplying hundreds of other secretaries with her correction fluid. The year before she died in 1980, Graham sold Liquid Paper for close to $50 million, giving half of that to her son, the former Monkees band member Mike Nesmith—who used it to fund innovations of his own at the pioneering multimedia recording company Pacific Arts.

The problem is not just rapid change—it's also the sheer volume of information rushing at us from all directions and many sources. Without a filtering device, we can't separate what's

through rigorous inquiry.

Can technology help us ask better questions? For the most part, it is better suited to responding to questions—not so good at asking them. Picasso was onto this truth fifty years ago when he commented, “Computers are useless—they only give[31] you answers.”

On the other hand, technology can serve up amazing, innovative, life-changing answers—if we know how to ask for them. The potential is mind-boggling,[32] as IBM’s Watson system demonstrates. Its winning appearance in 2011 on the TV quiz show *Jeopardy!* proved it could answer questions better than any human. Today, IBM is feeding the system a steady diet of, among other things, medical information—so that it can answer just about any question a doctor might throw at it (*If patient exhibits symptoms A, B, and C, what might this indicate?*). But the doctor still has to figure out what to ask—and then must be able to question Watson’s response, which might be technically accurate but not commonsensical.

When I visited Watson and its programmers

recently at IBM's main research facility—where the machine, consisting of a stack of servers, resides alone in a basement, humming quietly and waiting for questions to crunch on—I inquired (directing my queries to the nearby humans, not the machine) whether Watson might ever turn the tables on us and start asking *us* wickedly complex questions. While that's not its purpose, its programmers point out something interesting and quite promising: As Watson comes in increasing contact with doctors and medical students currently using the system, the machine is slowly training them to ask more and better questions in order to pull the information they need out of the system. As it trains them to be better questioners, Watson will almost certainly help them to be better doctors.

Is "knowing" obsolete?

Today, only a small group of medical professionals are using the Watson system to answer their questions. But eventually, all doctors—and all the rest of us, as well—will have

you need to understand how to frame the questions to get the best response."

In light of this, there's never been a better time to be a questioner—because it is so much easier now to begin a journey of inquiry, with so many places you can turn for information, help, ideas, feedback, or even to find possible collaborators who might be interested in the same question.

As John Seely Brown notes, a questioner can thrive in these times of exponential change. "If you don't have that disposition to question," Brown says, "you're going to fear change. But if you're comfortable questioning, experimenting, connecting things—then change is something that becomes an adventure. And if you can see it as an adventure, then you're off and running."

Why does everything begin with Why?

As Van Phillips began to proceed further on his own journey, he was, to use Brown's words, "questioning, experimenting, connecting things." He revised his initial Why question—*If they can put a man on the moon, why can't* I *(not* they*)*

Index of Questions

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