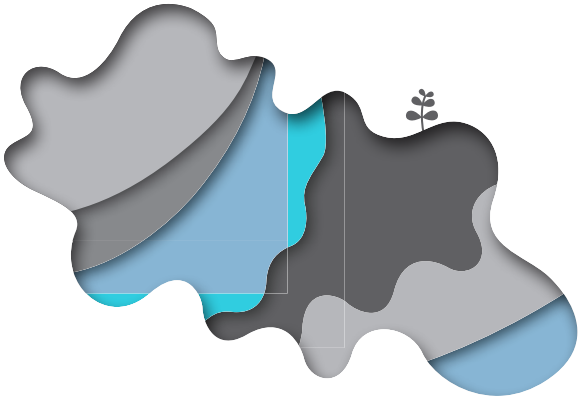
PART I

GETTING CURIOUS ABOUT CURIOSITY

Research is formalized curiosity.

—Zora Neale Hurston



WHAT IS THIS FUNNY LITTLE THING CALLED CURIOSITY?

"Why is the grass green?"

"How come we can see the moon in the day?"

"Where did the dinosaurs go?"

Anyone who's been around a young child for very long knows the barrage of questions they ask, from the mundane ("What's the difference between a burrito and an enchilada?") to the profound ("Why do people die?") to the uncomfortable ("Where do babies come from?").

Sometimes, their questions challenge us, testing the limits of our own knowledge.

Shortly before bedtime one evening a few years ago, my daughter, Molly, who was seven at the time, suddenly became engrossed in the inner workings of the fluorescent lightbulbs in her ceiling lamp. "Why are the curlicue lights better?" she asked.

I suspected her question was a bedtime-stalling tactic but felt compelled to answer. "They use less electricity," I said.

However, my answer didn't satisfy her curiosity; she wanted to know *why* they use less electricity.

"They're not as hot, so they turn more electricity into light," I replied.

Still, she was curious: "Why don't they get as hot?"

I was fast approaching the limits of my knowledge of interior illumination, so I offered a vague explanation about lighting gas inside the tube instead of a filament, punctuated with a quip about it being time to turn off the lights and go to sleep.

The spontaneity and doggedness of her questions, though, made me curious. Where had her curiosity come from? After all, I'd done nothing to encourage it; her questions had emerged from the inner workings of her mind. And apart from achieving a delay in bedtime of a few seconds, her inquisitiveness didn't serve any purpose beyond the desire to learn for the sake of learning. In that regard, her curiosity seemed almost . . . well, sublime—a reflection of what truly makes us human—an innate desire to seek knowledge, truth, and meaning.

But I'm getting ahead of myself.

A STRANGE PHENOMENON

One of the first things we might wonder about curiosity is, simply, what the heck is it? And what causes it? We've all experienced the weirdness of curiosity—how it flashes in our minds like a bolt out of the blue, a sudden jolt or seemingly invisible hand tugging at the sleeves of our intellect and piquing our imagination.

At times, curiosity can be an irrational drive—a quest for information with little or no material benefit. Consider, for example, supermarket tabloids grabbing our interest in the lives of Hollywood stars. Even more strangely, perhaps, while this sort of curiosity can be a powerful impulse, it's often ephemeral; once through the checkout aisle, we rarely give another thought to those tabloid headlines.

For some, curiosity can manifest itself as a sort of thrill-seeking impulse. We can become curious, for example, about skydiving, riding a motorcycle, or jumping off a cliff into the ocean. Or maybe we're drawn to milder (and less risky) thrills, like learning to salsa dance, talking to a new neighbor at a party, or visiting Bhutan. Sometimes, we act on those impulses, and sometimes, we don't. Soon thereafter, the impulse often fades.

At the same time, we've all probably experienced another kind of less fleeting and more intellectual curiosity, something that

drives us to keep searching for an answer, following one link after another on the Internet or filling our personal library with books on a particular topic that holds our fascination. In these cases, an initial spark of interest—often, we may even forget when or where it began—becomes a lifelong intellectual pursuit. This brand of deeper, more profound curiosity often lies at the heart of invention, science, and entrepreneurship—think of Thomas Edison and his team experimenting with hundreds of different metals before finally identifying tungsten as the best material for lightbulb filaments, or Jane Goodall spending months in the rain forest, patiently observing bands of gorillas. It's quite likely, in fact, that we owe most conveniences of modernity and scientific insights about our world to someone else's indefatigable curiosity.

A TWO-SIDED COIN

For these reasons, curiosity has long presented something of a puzzle to researchers. Over the past few decades of study and debate, psychologists have come up with a handful of different definitions, terms, and frameworks for curiosity, which generally fall into two main categories.

First, there's a spontaneous and ephemeral kind of curiosity, which over the years has been called *diversive* (Loewenstein, 1994) or *exploratory* (Engel, 2015a) curiosity. This kind of curiosity is typically triggered by external stimuli—something catches our fancy, providing us with an initial (and often impulsive) spark to explore our environment, an idea, or topic. When we experience this kind of curiosity, we may appear, in the words of curiosity researcher Susan Engel, to be "inquisitive and interested." However, an overabundance of this kind of curiosity can cause a person to appear easily "distractible." Teachers and parents might even grow concerned that their students or children are using curiosity to "distract others and prevent focus" (Engel, 2015a).

This fleeting kind of curiosity does not always serve a purpose. For example, we may wonder about a song lyric (are the Beach Boys really singing about "frying poultry in the sand"?) and go online for clarification (oh, "*by a palm tree* in the sand"). At this point, though, our initial curiosity, having led us to a

website of misheard lyrics, could take us down a series of rabbit holes of other misheard lyrics. Thirty minutes or more may pass before we look at the clock and realize we've consumed valuable time following our curiosity and not really accomplishing anything.

All of this, of course, is far different from the kind of sustained curiosity that leads to inventing lightbulbs, developing a polio vaccine, or putting a man on the moon. This latter kind of curiosity entails sustained pursuit of challenging goals—a continued quest for knowledge even when the goal seems elusive. We tend to admire this sort of curiosity, while harboring mild disdain for the other. This fact may explain some of our ambivalence about curiosity. We've all experienced that in one form, curiosity can be a vice, and in another form, a virtue.

Curiosity researchers call this deeper and more sustained kind of curiosity *specific* or *informational* curiosity (Engel, 2015a; Loewenstein, 1994). As the more focused and self-directed cousin of diversive curiosity, it reflects the need "to find ever more information on a particular topic" (Engel, 2015a). Instead of flitting from one topic to the next, this second type of curiosity drives us to delve deeply into something and get smarter about it. It's often associated with inner drive to learn, stick-to-itiveness, and relentless pursuit of knowledge just beyond our reach.

In sum, we might think of diversive curiosity as those fleeting impulses to learn that we experience while looking at tabloids in the supermarket checkout aisle or overhearing a juicy conversation in the booth next to us at a restaurant. Specific or informational curiosity, on the other hand, is the more admirable or noble drive to understand something deeply, to experiment doggedly, and to master complex knowledge.

That said, we shouldn't regard one kind of curiosity as exclusively *good* and the other exclusively *bad*. Indeed, most people, according to researchers, display both kinds, albeit in differing levels of balance.

Moreover, these two kinds of curiosity can work hand-in-hand. All experts began as novices. First, they had to become interested in the topic, explore it a bit more, and eventually become engrossed in it. To pursue knowledge in depth, we need a spark

of interest in the topic. Our natural human tendency, though, is to become less interested in something as we become more familiar with it.

Thus, we need new sparks of interest to stay engaged in our pursuits: To remain curious about something long enough to explore it deeply, we must continually find new wrinkles or surprises in it that make it feel new again, compelling us to dig deeper.

WHAT SPARKS CURIOSITY?

At this point, we might wonder (or, ahem, feel *curious* about), what exactly creates curiosity? Where does curiosity come from—how does it spring forth from our consciousness and spark our seemingly spontaneous impulses to learn? Over the years, numerous experiments have teased out the conditions that arouse curiosity—many of which we can easily reproduce in a classroom, faculty meeting, conversation with a friend, or presentation to a large audience. Here's a starter list drawn from a synthesis conducted by one of the preeminent names in the field of curiosity research, George Loewenstein (1994).

- **Manageable knowledge gaps.** Fundamentally, we become curious when we experience a gap in our knowledge. That's why we're suckers for incomplete sequences (e.g., 1, 2, 3, 5, 8 . . . what comes next?) and unfinished narratives (e.g., a cliffhanger prior to a commercial break). Riddles and puzzles also fit into this category, especially when we have a "reference point" with them (Loewenstein, 1994, p. 87). Studies have shown, in fact, that we tend to become more interested in a topic when we (a) know something about it and (b) feel our knowledge gap closing (Kang et al., 2009). This explains why it's much harder to put down a mystery novel five pages from the ending than five pages from the beginning.
- **Guessing and receiving feedback.** To become curious about something, we must also become aware of our knowledge gap—that is, we must realize we don't know something about a topic of interest to us. Studies have found, for example, that when we receive "accuracy feedback"—making a guess and

learning we have guessed wrong—we want to learn the correct answer. In his own research, Loewenstein (1994) found people became more interested to learn the easternmost state in the US after they made a guess (and received accuracy feedback) about the westernmost state in the nation. (If you're curious, the answer is Alaska for both questions, as a handful of Aleutian Islands lie in the Eastern Hemisphere.)

- **Incongruities.** We also become curious when we encounter something that doesn't fit our expectations. Consider, for example, the spark of curiosity you likely feel when you learn (or learned) that winds blowing down from mountaintops into valleys below can sometimes be warm, not cold, or that offering fewer flavor choices of jams in a supermarket display encourages people to buy more jars of jam. In both cases, you may find yourself wondering, why is that?
- **Controversy.** Researchers have also found that controversy begets curiosity. In a now-famous experiment, researchers randomly assigned fifth- and sixth-grade students to work in groups. One group was instructed to engage in cooperative learning about a topic (for example, strip mining or designating wolves as an endangered species); the other was encouraged to focus on controversy in the topic. Students in the controversy condition demonstrated more interest in the topic, sought more information on it, and were more likely to give up a recess period to watch a film about it (Lowry & Johnson, 1981).
- **Someone knows something we don't.** We might call this the "I-have-a-secret" phenomenon. For example, a friend telling us she or he has bought a great present for us but won't tell us what it is until our birthday or hearing someone sitting next to us chuckle while reading a magazine article are both apt to make us curious.

What all of this suggests is that there are a number of ways our external environment can arouse our curiosity.

Yet we might wonder about people who seem to be perpetually curious. They don't simply respond to stimuli but rather seem to spark their own curiosity. They're always asking questions, reading books, wondering about ideas, exploring new places, and meeting

new people. They have a knack for looking at something that others find bland or boring and finding something interesting about it. That knack seems like a different, deeper, and more internalized form of curiosity than the fleeting variety triggered by conditions in our external environment.

It is.

These conditions (we might even say gimmicks) for creating curiosity are all fairly task-specific and reflect what researchers call *state curiosity*. Such ephemeral forms of curiosity are a far cry, of course, from the form of curiosity that comes to mind when we think of a Jane Goodall, Albert Einstein, or Marie Curie—people with insatiable intellectual appetites who keep asking questions. They're not just curious from time to time, but always curious. This kind of deeper, more internalized curiosity reflects what many researchers call *trait curiosity*.

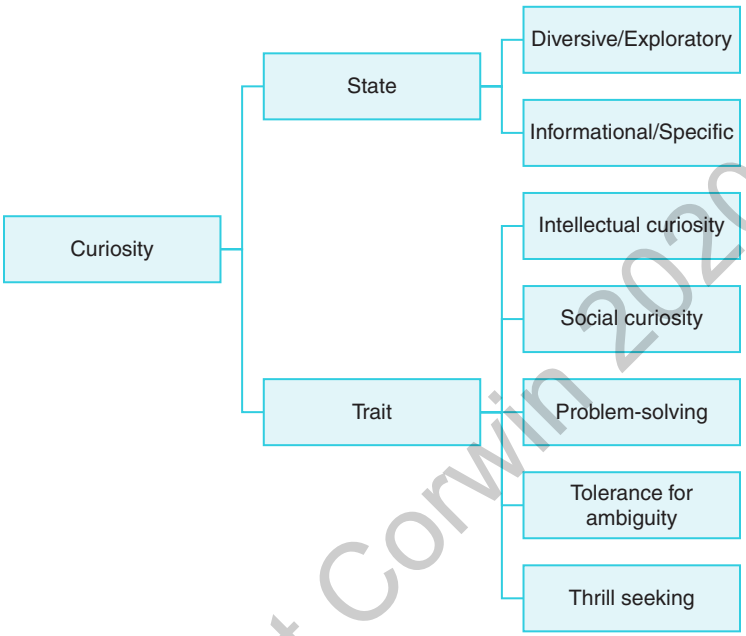
BECOMING CURIOUS PEOPLE

It's trait curiosity that's most often linked to positive outcomes in school, the workplace, and life itself. Trait curiosity gives us a fire inside to keep learning, even in the face of challenges. People with high levels of trait curiosity are curious as people. We might think of it as the difference between an *-ing* or *-er* ending on verbs. It's one thing to say we're writing, swimming, singing, or inquiring, and something different to call ourselves writers, swimmers, singers, or inquirers. So, too, it's one thing to say I *feel* curious, and something different to say I *am* curious.

As we'll see throughout this book, it's this latter form of trait curiosity that's typically linked to better academic performance, relationships, job performance, and the like. New studies are finding, though, that trait curiosity itself is not a single, monolithic characteristic but rather takes different forms, including "joyous exploration" (seeking novel stimuli), "social curiosity" (seeking to understand others), "stress tolerance" (embracing ambiguity), "deprivation sensitivity" (focused problem-solving), and "thrill seeking" (being open to novel and even risky experiences; Kashdan et al., 2018). Although researchers continue to study (and debate) how to define and categorize curiosity, for our

purposes it may be helpful to picture curiosity as sorting out something like this:

Figure 1.1 Visualizing Curiosity



Creating these two big "buckets" of state and trait curiosity prompts a nature-versus-nurture question—specifically, is trait curiosity something innate, a personality characteristic (as the label might suggest), and accordingly, a product of nature? In other words, are some people naturally predisposed to be more curious than others? Or, instead, is trait curiosity more of a discipline—something akin to a talent, like singing, that has elements of nature (some people are gifted with better vocal cords than others), but nevertheless, can be nurtured and developed?

The answer to this question has profound implications. If curiosity is in our stars (or genes), that would mean some people are born to be more curious—and thus destined to lead happier, more successful, and longer lives—while the rest of humanity is fated to toil away in a humdrum, incurious existence. If, on the other hand, curiosity is a trait we can *develop*, we ought to

contemplate another question altogether, especially in light of the wide variance researchers observe in people's reported levels of curiosity: Why do so many people seem to lose their curiosity or struggle to rekindle it?

As we'll discover in the next chapter, our search for an answer to this question of whether curiosity is borne more out of nature or nurture will take us on a winding road with a few surprises lurking around each corner.