

**Gullible to Ourselves**

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The age of the Internet has produced a vast democratization of information. Far more than in any past age, crucial information can be gained easily by anyone interested in seeking it—often with only a few flicks of their fingers on a computer’s keyboard. Therein, however, lies the problem. If far more people can gain information without any barriers, far more people can also provide it. Regrettably, among those providers are the misinformed, bad actors, people with vested interests, and others with an ideological agenda that leads them to distort or obscure the truth. Information providers may not be even human, nor if human not primarily interested in the truth.

As such, as far as it comes to fact and expertise, the Internet has brought about a true age of uncertainty. As Kevin Kelley, of Wired magazine, put it, “Truth is no longer dictated by authorities, but is networked by peers. For every fact there is a counterfact” (Anderson & Rainie, 2017) In June 2017, a false story suggesting the founder of Ethereum had died in a car crash caused the company’s market value to drop by \$4 billion. The United States National Aeronautic and Space Administration (NASA) found it have to publicly deny stories that it was running a child prostitution ring on Mars (Holley, 2017). The truth may be out there, but it is often enough hidden behind curtains of deception, misdirection, and misinformation.

Thus, would it not be ironic in this new age of information, in which it is uncertain which sources to seek out and trust, that the person we need to be wary of, the individual who might be most likely to deceive us, the one who is most likely to deflect us from truth, is ourselves.

In this chapter, I argue that the agent we are most gullible to is ourselves, in that we often imbue too much faith in our own beliefs and opinions. I argue from psychological data that people too quick to believe what the self has to say and too easily dismiss helpful information from others. I argue that people are not good at knowing when to distrust their own beliefs and arguments and to instead seek advice. I will discuss why it is difficult for people to recognize whom to seek

advice from, namely, experts in their midst. I will describe how motivated reasoning steers people toward unwarranted self-belief. Finally, I will talk about first steps people must take to rid themselves of self-gullibility.

### **Overbelief in Self**

Psychological research showing that people overbelieve themselves goes back many decades—indeed, back into the 1950s. Since that time, psychologists have been asking people to answer questions, make judgments, or render predictions, and have shown that people overestimate the likelihood that their conclusions will prove accurate (for reviews see Lichtenstein, Fischhoff, & Phillips, 1982; Moore & Healy, 2008).

### **Overconfidence**

This literature, known as the overconfidence or overestimation literature, follows a typical format. Research participants are asked to answer a question with a definable answer (e.g., such as *Did Shakespeare write more than 30 plays?*) or make a prediction (e.g., *Will you pay off your credit card by the end of the year?*) and then estimate the likelihood, up to 100%, that they will be right (Moore & Healy, 2008). The consistent finding, repeated year after year and study after study, is that people largely overestimate the chance that their conclusions are right. To be sure, if they are merely guessing, they seem to be aware of that fact. If they think the answer to a yes-or-no question is 50-50 to be right, they are, indeed, accurate roughly 50% of the time (see Lichtenstein et al., 1982; also Han & Dunning, 2018b). But on those occasions when they are certain of an answer, depending on the study and the topic, they are wrong one out of every five answers they give (Fischhoff, Slovic, & Lichtenstein, 1977).

People show their overbelief in other ways, offering answers that they endorse with too much exactness, known as the overprecision effect (Moore & Healy, 2008). In this form of undue

self-belief, research participants are asked to answer a question with a specific answer, such as *In what year did Thomas Edison invent the light bulb?* and then are asked to provide a range around that answer which has the chance of capturing the true answer 80% of the time. For example, for *Thomas Edison*, they may suggest 1890 as their best guess, with the true answer 80% likely to be included between the brackets of 1880 and 1990 (Dunning, 2018b). Or, financial officers at mid-size to large companies were asked to forecast the value of the S&P 500 stock index one to ten years in the future, and then give upper and lower bounds that had an 80% chance of capturing the index's true value at the end of the prediction period (Ben-David, Graham, & Harvey, 2013).

Work on the overprecision effect shows that people overestimate the exactingness of their conclusions, in that the bounds they draw around their best guesses rarely contain the right answer as often as they think. They may draw bounds that they think captures the true answer 80% or 90% of the time, but those bounds actually capture the truth more like 35% to 40% of the time, depending on the study (Russo & Shoemaker, 1992). In the study of financial officers described above, for example, study participants drew boundaries that were too narrow, in that they captured the true value of the S&P only 36% of the time, not 80% (Ben-David, Graham, & Harvey, 2013). In short, the truth has a habit of wandering much further away from where people's intuitions think it might be located.

Importantly, this overbelief in one's answers is the most pronounced among those most likely to make the most mistakes and suffer the largest number of errors. Namely, people largely fail to anticipate those topics and areas in life where they are likely to be incompetent and provide answers that are wrong. This has popularly come to be known as the Dunning-Kruger effect (Dunning, 2011; Dunning, Johnson, Ehrlinger, & Kruger, 2003; Ehrlinger, Johnson, Banner, Dunning, & Kruger, 2008; Kruger & Dunning, 1999), which formally suggests that people who

lack expertise in an area suffer a double-curse. First, their lack of expertise leads them to make many errors. Second, and more importantly, their lack of expertise prevents them from seeing their choices as errors. Put simply, they lack the very expertise they need to recognize just how much expertise they lack. As a consequence, they think they are doing just fine when, in fact, their performance suffers greatly.

A recent example in the realm of overprecision shows this pattern. Research participants were asked to estimate the approximate year in which 12 different historical events took place, like the end of the civil war, Hurricane Katrina hitting New Orleans, or the stock market crashing to begin the Great Depression. Participants were also asked to provide bounds around their best estimates that would contain the true year of the event about 80% of the time. The top 25% of performers in the study did quite well. They were off in their best guess estimates by roughly 7 years on average, but their bounds captured the right answer about 63% of the time—not 80% as asked but close. That is, they overestimated the precision of their estimates a bit too much, but not by much (Dunning, 2018b).

Participants in the bottom 25% of performers, however, were off on average by 42 years on each and every estimate they made. To be sure, they had some insight into the problems of these answers, in that they provided bounds around those answers that were wider than those offered by the best performers, roughly 36 years apart rather than the rather confident 12 years apart offered by best performers. However, even these much wider bounds captured the true answer only 39% of the time. In short, this less knowledgeable group showed some insight into the fact that their answers were imprecise, but they largely failed to recognize just how imprecise and faulty their answers really were (Dunning, 2018b).

### **Belief in Wrong Answers**

In a sense, this overbelief in self should not be a surprise. In many ways, it is simply the product of having been asked to make a choice. Facing the request, people choose what they believe to be the best choice. They select what they believe to be the optimal option given all the alternatives they can think of and all the information and reasoning they have available (Capen, Clapp, & Campbell, 1971; Dunning, 2018a; Han & Dunning, 2018a). Often that choice is, indeed, the best and all is well. However, often enough to cause problems, that choice can have the look and feel of a correct choice but still turn out to be wrong, or at least not as good as the individual believes it to be. In auctions, this is known as the “winner’s curse,” in that the person who bids the most for some object at an auction is the one is the most likely to have overvalued it (Massey & Thaler, 2013; Thaler, 1988). This winner’s curse similarly attaches itself to people’s decisions. Not only are they the right ones but they often choices people have also overvalued.

We have seen evidence that wrong reasoning often leaves people to be more, and sometimes just as confident in themselves, as correct reasoning. For example, the day after the 2014 midterm elections in the United States, we surveyed roughly 350 about their political views and beliefs about social and economic conditions in the country. Many of our questions were factual, in that true answers could be found by simple research over the Internet. We asked for example, whether teenage pregnancy rates were at record highs, whether the stock market had gone up under the administration of Democratic President Barack Obama, and whether the poverty rate had gone down. Respondents showed only a modest awareness of facts on the ground, getting on average only just over half of the questions right (Dunning & Roh, 2018).

What was interesting, however, was how participants tended to get questions wrong. They had the option of saying “I don’t know” to every question, but of the questions they got wrong, they chose that option only about 40% of the time. More often than not, they gave an

affirmative wrong answer—usually one congenial to their politics. For example, conservatives claimed that teenage pregnancies were at a record high (actually, no, they were at a 20-year low) and liberals would say that the poverty rate was down (at the time, it at nearly a 50-year high). On average, 35-40% of what both groups claimed to be true was demonstrably false (Dunning & Roh, 2018).

This, however, was the key consequence of the finding. In the survey, we also asked respondents if they were a “well-informed citizen.” We were pleased to find out positive ratings along this question were correlated with getting questions right. Ratings were also negatively correlated with the frequency with which respondents answered “I don’t know.” What was troubling, however, was that respondents considered themselves well-informed to the extent they gave affirmatively wrong answers to our questions. In fact, wrong answers stoked overall self-impressions of being “well-informed” almost as much as right answers. We have seen this pattern, as well, in surveys about financial literacy, civics, and world geography (Dunning & Roh, 2018). It is also linked to behavior. Respondents who provide more wrong answers to political questions also tend to be more active in politics, signing petitions, donating money, and organizing campaign events.

In essence, the problem with people is that have a difficult time distinguishing true knowledge from “what they know that isn’t so.” In computer programming terms, they have a difficult time distinguishing pattern (correct and efficient approaches to programming challenges) from anti-pattern (misleading and mistaken responses to such challenges). Both feed into confidence (Sanchez & Dunning, 2018; van Loon, de Bruin, van Gog, & van Merriënboer, 2013). We have seen this, for example, in studies on intuitive physics. In one such study, we asked participants the trajectory a ball would take after it was shot through a curved tube. The correct

answer is that it will follow a straight trajectory upon exiting the tube. However, many people think that the ball will continue to curve as it leaves the tubing. Those who really believe it, in that they endorse such a conclusion for any ball-and-tube question they are asked, tend to be just as confident in their “anti-answers,” and their general knowledge of physics, as people who always get the answer right (Williams, Dunning, & Kruger, 2013). The same pattern holds for questions about logic and finances. Those who unfailingly give the same wrong answer to similar problems are just as confident in their answers as those who perfectly give the right answer.

### **Assumed Accuracy Without Feedback**

People certainly act as though their judgments are, if not the truth, pretty close to it. This assumption carries implications for tasks in which people receive little, incomplete, or systematically biased feedback. On those decisions for which people receive no feedback, their subsequent behavior suggests that they simply take their unverified judgment as correct. Their decision stands as internally-generated feedback, a process known as constructive coding (Elwin, Juslin, Olsson, & Enkvist, 2007).

Consider, for example, a human resource official at some company who has final authority in making hiring decision. That official will receive feedback about some decisions—namely, for applicants who are hired, in that they will either succeed or fail at the job. But what rejected applicants? For them, there will be no feedback. There is no chance to see how many of them, as predicted, would fail and how many, despite predictions, would have succeeded. People in the official’s position, however, will largely act as though those rejection decisions were all correct. As a consequence, they may grow into impressions that not many applicants are worthy of a job at their company, even though they do not have the complete evidence needed to reach such a sweeping conclusion. The conclusion is, instead, based on a mixture of selective evidence plus the

presupposition of accurate judgment in all cases without evidence (Elwin, 2013; Henriksson, Elwin, & Juslin, 2010).

The social consequences of assuming accuracy without evidence or feedback can be profound. In one study, Fetchenhauer and Dunning (2010) asked college students to watch videotapes of 56 other students and to decide, for each, whether they would trust that person in a financial game. One group was given feedback about their judgments rather selectively—that is, only after they had decided to trust the person. Here, they could find out if their judgment was accurate or whether they had been too optimistic. However, they were not given any feedback about the other students they had decided were unworthy of trust. Participants in this condition ended up too cynical about their peers, significantly underestimating how trustworthy their peers would prove to be in the game. This is not a surprise given the biased nature of the feedback they received plus their tendency to think of their judgments as right. Overly optimistic trust predictions were corrected by feedback. However, overly cynical predictions that led participants not to trust their peers produced no feedback, and thus no opportunities to learn about misplaced cynicism.

Participants in another group, who were given feedback for each and every decision, regardless of whether they trusted or not, were much more accurate and optimistic about the behavior of their peers. They also earned more money when it came time to play the game.

### **Discounting Advice from Others**

One sees self-gullibility in what people make of the opinions and conclusions of others. People often discount or dismiss what other people have to say, often to the detriment of the accuracy of their own self-views.

### **Discounting Advice from Others**

This pattern is largely evident in the advice-taking literature found in work on organizational psychology. In this research, people are asked to estimate, for example, the current unemployment rate, or the population of some city, and then are presented the estimate that another person has made. They are asked, in light of any disagreement, whether they would like to revise their original estimate. Often, they do not, sticking with their initial intuition. Or, instead, they may revise their original estimate somewhat, like a little less than a third of the way toward the other person's response. However, in the main, they typically give their own original estimate more weight than they do the judgment of another person, a phenomenon known as egocentric discounting (Bonaccio & Dalal, 2006; Harvey & Fischer, 1997; Yaniv, 2004; Yaniv & Kleinberger, 2000). The issue with egocentric discounting is that people would achieve much greater accuracy if they gave the other person's estimate at least just as much weight as their own—if they had just split the difference between the two.

In sum, people, to their own disadvantage, give too much weight to their own supposed expertise than they do the knowledge of others, doing so even if it makes sense to give the other person's conclusions more weight than their own. This was specifically shown by Soll and Larrick (2009), who paired research participants with an individual from another country. Each partner was asked to consider their own countries and that of their partner, and then to make 10 estimates about each country, such as the percentage within each country who smoked, or lived in urban areas, or were under 15 years of age. They then showed each other their estimates. When considering their own country, respondents typically showed the usual pattern of egocentric discounting. They stuck to their original estimate nearly 40% of the time and split the difference only around 25% of the time. This pattern, however, is defensible, in that people presumably know more about their own country than their partner would.

What was telling was how respondents reacted considering their partner's estimates of his or her own country. Here, participants did give weight to the other person's supposed expertise, but not as much as one might think, or was warranted. Participants stuck with their original estimate only 10% of the time, but by far the most popular choice to do was to split the difference—that is, to give equal weight to one's own expertise as the knowledge from a person obviously more familiar with the country in question.

Recent work on the Dunning-Kruger effect ratifies the observation that people fail to seek out advice as much as they should (Yan & Dunning, 2018). In three studies, participants took quizzes in which they could win small amounts of money for each question they got right. For each question, participants were given a chance to look at the answer of another person if they wanted. This would diminish the amount of money they could win for that question, but, of course, looking at the answers of others could prevent the participant from making an error. In the first study, the topic was household safety for children. The respondents were people reporting having at least one child under the age of six at home, and were asked questions about preventing accidents and identifying household hazards.

Analyses showed that participants were not very enthusiastic about receiving advice, asking to see another person's response only 13% of the time. To be sure, they asked for that advice on questions they were more likely to be wrong. Of key interest, however, respondents doing poorly on the quiz were showed no more eagerness to receive advice, although they more clearly needed it, relative to participants doing well. As a consequence, they got many items wrong when they could have been alerted to the error. A second study, focused on knowledge of sexually transmitted disease among college students, largely replicated these findings. Students asked for advice roughly 20% of the time, more often when they were likely to be wrong versus

right. Poor quiz performers, however, were not any more likely to ask for advice than their more knowledgeable peers (Yan & Dunning, 2018), although their answers contained many more errors.

### **Vagaries in Seeking Out Advice**

People, however, show a more fundamental problem when it comes to dealing with advice—left to their own devices, they do not necessarily know whom to approach for the best advice. In short, needing advice presents something of a paradox. People need advice when their own expertise contains gaps (Caputo & Dunning, 2005; Wu & Dunning, in press) and defects (Dunning & Roh, 2018; Marsh, Cantor, & Brashier, 2016; Williams, Dunning, & Kruger, 2013). But, with those gaps and defects, how can they adequately judge the expertise of others to know the best one to approach? To recognize superior expertise would require people to have already a surfeit of expertise themselves. However, those needing advice often simply do not have that knowledge.

In short, those seeking advice suffer from what we term the *Cassandra Quandary*, in that they do not have adequate expertise to recognize superior expertise in others (Dunning & Cone, 2018). As Sir Arthur Conan Doyle (1915), through his immortal character Sherlock Holmes once observed, “Mediocrity knows nothing above itself” (p. 25). The phenomenon is named after the princess Cassandra from Greek mythology due to what it means for the person who has true superior expertise. Cassandra was given the gift of true prophecy, but was cursed by Apollo never to be believed by her peers. In essence, we suggest that in contemporary times, people with true knowledge often have their wise advice fall on deaf ears.

We have conducted several studies showing that people have a much more difficult time identifying people with superior knowledge than they do those with inferior expertise. In one study on financial literacy, participants took a 4-item financial literacy quiz and then were asked to

grade the responses made by four other people to the quiz. Unbeknownst to participants, the people they graded achieved scores on the quiz that ranged from zero to a perfect score of four. Their specific task was to rank order their peers' performances from worst to first, and asked to think explicitly about whom they would be most likely to or least likely to approach for advice. A greater proportion of participants accurately identified the worst performer (43%) than did the best one (29%) (Dunning & Cone, 2018).

In another study, participants took a 12-item test on global literacy modified by one created by the Council of Foreign Affairs and National Geographic magazine. The test was difficult; on average, participants achieved scores of 6 out of 12. One half of participants were then given tests as filled out by three other individuals, one of whom had gotten 11 items right and the other two only 7. They were asked to identify the person who had done the best on the test. Only 25% did. This stands in contrast to the other half of participants were presented with the reverse situation. They were given tests filled out by three individuals, one of whom had gotten only 1 right and the others only 5, and asked to identify the worst performer among the three. In this situation, 72% correctly identified the worst performer (Dunning & Cone, 2018). In short, people achieve lopsided accuracy in their judgments of expertise. They achieve greater accuracy recognizing poor performance than they do superior achievement.

This lopsided pattern arises, in part, because of people's gullibility to themselves. In short, people tend to assume their own opinions and conclusions are true. They then use those opinions to judge those of others. If another person agrees with them, they assume that the other person is likely to be right. If the person disagrees, then the other person is likely to be misguided. This tactic works well if the other person is, indeed, an inferior performer. In this circumstance, any difference of opinion is a valid sign that the other person lacks judgment. However, this

strategy leads to calamity when the other person has superior expertise. Here, a difference of opinion is read as error on the part of the other person when it, in fact, is anything but error on their part. However, believing in one's own opinions leads people to discount viewpoints that are superior to their own (Dunning & Cone, 2018).

One sees how this can lead to almost comical error in the domain of chess. In one study, we had chess players of varying skill level grade the moves made by six other chess players, whose performances ranged from terrible to near grandmaster level. Good chess players, near grandmasters themselves, made sensible judgments about whether they could beat these other players after studying their moves. They were almost certain they could beat the player choosing terrible moves, but thought their chances were only 50-50 with the near grandmaster. Less skilled chess players reached a different, somewhat paradoxical, set of conclusions: They thought their chances with the terrible players were close to 50-50, but that they had a 70% chance of beating the near grandmaster. Apparently, after seeing near grandmaster moves, these less skilled players mistook these unfamiliar moves to be signs of flawed play (Dunning & Cone, 2018).

### **Differential Treatment of Self-Thought**

Up to now, one can imagine that people's conclusions about their opinions and beliefs are somewhat sensible, or at least defensible, if inaccurate. People are given questions to answer and problems to solve, and they arrive at the best solution they can construct. To them, no other solution seems more reasonable or superior (Dunning, 2018a). If any such solution had emerged, they would have chosen that other one. The problem people face is that their "best options" at times are products of faulty reasoning. There is some glitch in their calculation or some crucial information is overlooked or unknown. But, in terms of effort and impartiality, people are trying honestly to achieve the best answer.

However, that is not always the case. At times, people do short-circuit their thinking to arrive at conclusions that they prefer. Or, they start out their thinking with the premise that they are intelligent and effective individuals—and no fact will be admitted that questions that self-view. In short, people conduct their thinking under the shadow of motivated reasoning, bending or directing their thinking in such a way to preserve favored pre-conceptions of the self and the world (Baumeister & Newman, 2004; Dunning, 2001; Kunda, 1990).

Thus, it is not a surprise to find that people treat their conclusions and reasoning differently than they do that of others. People assume they themselves are trustworthy intellects, but they are not so sure about other people. Thus, they place the reasoning of other people under closer scrutiny and skepticism than they do their own. This pattern was found, for example, in the work of Gregg and colleagues (Gregg, Mahadevan, & Sedikides, 2017) who asked people to evaluate a novel theory about an alien planet. More specifically, they were asked to consider two species on that planet, the Niffites and the Luupites, and judge which was the predator of the other and which was the prey. Before they began, however, they were given a specific theory to test, and told that it had been assigned to them. It was their theory; they were to be identified with it. Other participants were told that the theory came from some other participant named “Alex.” The researchers found, as participants pored over information testing the theory, that people gave more lenient ratings to the information when it was supposedly consistent with their own theory than when it was with Alex’s. As a consequence, at the end of the study, they believed in the theory they had been assigned to more. In a second study, they believed their own theory more than one that had been assigned to no one.

Other research suggests that this bias toward one’s own theory may come from a superior sense that one is impartial and insightful. Namely, people tend to think of themselves as superior

to other people along desirable traits, such as honesty, intelligence, and being a good driver (Dunning, 2005; Dunning et al., 2004). Even prisoners locked up in British cells tend to describe themselves as more moral and ethical than the typical British citizens (Sedikides, Meek, Alicke, & Taylor, 2014). This sense of self-superiority also carries over to intellectual pursuits, which people claiming better ability at reaching accurate and impartial judgments than their peers. In the ultimate irony, that is, people have a bias toward claiming unusual abilities to reach unbiased conclusions. These ironic self-views are termed the *bias blind spot* (Pronin, Lin, & Ross, 2002).

Work suggests that people scrutinize other people's reasoning to the extent that they exhibit the illusory superiority associated with the bias blind spot. In this research, participants are shown answers that other people have given to simple math or logic questions. The answers are wrong, but intuitively appealing, in that it takes deliberate thought to disentangle why these answers are wrong and then reach the right answer. When the appealing but wrong answer was attributed to a specific other person, participants were much more likely to spot the error and correct it with the right answer, relative to when the answer was attributed to no one (and perhaps more likely to be adopted by the participant). Importantly, this trend arose only for those participants exhibiting the bias blind spot, and thus a sense of false intellectual superiority over others. Of course, this was the grand majority of participants in the study, but those who denied a bias blind spot actually showed the opposite pattern in their judgments of others. These few individuals were more likely to think the answer was right when attributed to some other single individual (Mata, Fiedler, Ferreira, & Almeida, 2013).

### **Managing Our Opinions**

Given these considerations above, what is one to do to avoid become a victim of gullibility? Perhaps the overall lesson is to remember that being a victim of gullibility likely

requires two perpetrators. Take the case of Dr. Stephen Greenspan, who in 2008 at the age of 67 published his magnum opus on his life's work in psychiatry. The title of the book: *The Annals of Gullibility*, and the volume comprised decades of research and thought about what prompted people toward vulnerable gullibility, as well as what steps to avoid it.

It was only two days after the publication of his book and Dr. Greenspan got the phone call. The financial advisor managing part of his retirement investments in New York had just been arrested from fraud. The advisor was Bernie Madoff, who ultimately would be found to have fleeced more than \$65 billion from his clients. For Dr. Greenspan, a full third of his retirement investments had vanished into that total, gone forever (Griffin, 2009).

That the person who literally wrote the book on gullibility could be taken is a cautionary tale for all of us. Beyond that, it should remind us that falling into gullibility requires not only someone with an alluring tale but also a recipient who makes a too confident judgment that the allurer can be trusted. We fall prey not only to the person with the tale, but to our own self-belief and overconfidence.

As such, we should be vigilant not only about other people but also our own judgment. For his own part, Dr. Greenspan (2009) admitted as such. In subsequent writings, he admitted that there were warning signs that he had dismissed. He did not, for example, take the usual cautions he took when dealing with a topic—high finance, in this case—that he knew nothing about. He had suspended all the rules he knew full well he should live by.

In evaluations of evidence, it is customary to split the task into two assessments. One has to do with the strength of evidence; the other has to do with the weight the evidence should be given (Griffin & Tversky, 1992). Strength refers to the clarity or force with which evidence suggests one conclusion over all others. Weight refers to whether the evidence is sturdy, reliable,

or credible. For example, a person on the witness stand may be adamant in his or her testimony (i.e., high in strength). But is it credible? The witness might have a reason to lie, and thus not to be given much weight?

The psychological literature suggests that judgments tend to overemphasize the strength of the evidence while underemphasizing weight (Griffin & Tversky, 1992; Jiang, Muhanna, & Pick, 1996; Nelson, Bloomfield, Hales, & Libby, 2001). For instance, suppose you hold a coin in your hand that may be biased towards either heads or tails. To assess the bias, you flip it four times and it comes up heads each time. That is strong signal of bias, but should you give it much weight? After all the chance are 1 in 16 that all you have just seen is a random fluke of heads. Most people, however, will find the signal to be convincing that there is bias. Certainly they will think there's more of chance if you, say, had flipped the coin 15 times and it came up heads on 11 of them. The strength of the signal indicating bias is not as strong as before (only 80%), but it should be given more weight, in that the chance of obtaining this result statistically is lower than the one before (2% vs. 7%, respectively) if the coin were fair. What it gives up in strength it more than makes up for in weight, that is, how sturdy the result is.

Thus, one key to avoiding gullibility is to people to become more active experts in the assessment of weight. Not only should they pay attention to the stories being told, but also adept at judging the credibility of those stories. Recent research has exactly focused on that: For example, researchers are actively working on media literacy classes to direct people to clues to help them weigh what stories they can believe on the Internet (Shellenbarger, 2016).

The discussion in this chapter suggests that any analysis of weight should go beyond an analysis of the evidence out there to also include the self within. People need to ask if they are in a position to credibly weigh any evidence in front of them, or whether they need help. They need to

ask, for example, whether a story involves expertise beyond their ken. Are they considering a familiar or unfamiliar topic (Dunning et al., 2004)? They also need to ask whether they have considered all possible conclusions, or like Dr. Greenspan, just went with their intuition in hiring their financial advisor (Williams, Dunning, & Kruger, 2013). They have to ask whether they might harbor any ulterior motives that may distort their reasoning (Baumeister & Newman, 1994; Dunning, 2001; Kunda, 1990).

### **Concluding Remarks**

The inevitable truth of modern life is that one must ultimately live under the shadow of potential vulnerability. As British novelist Graham Greene (1943) sagely noted, “it is impossible to go through life without trust,” for to live without it would mean “to be imprisoned in the worst cell of all, oneself” (p. 43). As such, a central task for any individual is to learn how to trust without letting that trust slip into gullibility. What this chapter reinforces is the notion that mastering the art of trust necessarily includes learning when to trust—or to be wary of—one of the most important people of our lives, namely, ourselves.

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