

You Think Failure is Hard? So Is Learning From It

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Abstract

Our society celebrates failure as a teachable moment. But do people actually learn from failure? Though lay wisdom suggests they should, a review of the research suggests that this is hard. We present a unifying framework that points to emotional and cognitive barriers that make learning from failure difficult. Emotions undermine learning since people find failure ego-threatening. People tend to look away from failure and not pay attention to it to protect their egos. Cognitively, people also struggle, since the information in failure is less direct than the information in success, and thus, harder to extract. Beyond identifying barriers, this framework suggests inroads by which barriers might be addressed. Finally, we explore implications. We outline what, exactly, people miss out on when they overlook the information in failure. We find that the information in failure is often high-quality information that can be used to predict success.

Keywords: motivation, learning, failure, barriers

You Think Failure is Hard? So Is Learning From It

Modern society celebrates failure as a teachable moment. When we fail, we are told: “fail forward!” (Maxwell, 2007). Often, it is successful people who are most evangelical in the conviction that “we learn from failure” (Stoker & Hindle, 2003). In a recent graduation speech, [U.S. Supreme Court] Chief Justice John Roberts went so far as to wish the graduates “bad luck”—so they’d have something to learn from (Barnes, 2017).

Do people actually learn from failure? Though common wisdom suggests people should, we find that learning from failure is hard. Emotional and cognitive barriers can keep people from seeing the information in failure and learning from it. Emotionally, failure bruises the ego. When people feel threatened, they tune out, missing the information failure offers. Cognitively, people also struggle. The information in failure is less direct than the information in success. Whereas success points to a winning strategy, from failure people need to infer what not to do. Perhaps mantras about learning from failure have proliferated precisely because it is so hard. The Italian philosopher Antonio Gramsci once observed that “history teaches, though it has no pupils” (Gramsci, 1977). We find that something similar happens with failure. Failure contains useful information, but people struggle to learn from it.

We begin by reviewing what people learn when faced with failure (Part I). Next, we present a unifying framework that identifies the emotional and cognitive barriers that make learning from failure difficult, and suggest how these barriers might be addressed (Part II). Finally, we explore implications. We review what it is that people miss when they overlook the information in failure (Part III).

Part I: Do People Learn From Failure?

We begin by reviewing research on what people learn in a traditional sense: what information people extract from failure. Next, we review what people learn about themselves—that is, we outline the inferences people make about their ability, their control, and their commitment following failure.

What Information Do People Extract From Failure?

The human species appears wired to avoid negative information about the self. People go to great lengths to avoid bad news, even when that news might contain something worth knowing. For example, people regularly ignore risk factors and diagnoses even though this information can be life-saving (Sweeney, Minyk, Miller, & Shepperd, 2010). In one study, over

10% of people who were tested for HIV never returned to learn their results (Tao, Branson, Kassler, & Cohen, 1999). People avoid potentially useful information because, more than they want to learn, they want to avoid bad news.

This active avoidance of negative—and even just potentially negative—information is especially pronounced for one specific type of personal news: failure. Novices routinely avoid negative performance feedback (Finkelstein & Fishbach, 2012), just as investors stop checking their finances when the stock market drops—the so-called “ostrich effect” (Sicherman, Loewenstein, Seppi, & Utkus, 2015, see also Webb et al., 2013). Yet despite everyone’s efforts to avoid failure, eventually the inevitable occurs. People fail. When this happens, what do people learn from the experience?

To explore this, we developed the **Facing Failure game** (Eskreis-Winkler & Fishbach, 2019). This game presents participants with a series of binary-choice questions—multiple choice questions, each with two answer choices. The task has several versions, each of which teaches different content (i.e., language, relationships). In all versions, players first enter a learning phase. In the learning phase, players answer each question and receive success or failure feedback, depending on whether they guess right or wrong. Because each question has only two possible answers, both failure and success feedback provide full information on the correct answer. Success feedback identifies the correct answer whereas failure feedback identifies the incorrect answer, which allows the participant to infer that the other answer was correct. Following feedback, participants enter the test phase. In the test phase, players answer close iterations of the initial questions. The test assesses whether people learned from feedback in the learning phase and can demonstrate learning. Those who do receive a monetary bonus.

For example, in the language-learning version of the task, the learning phase presents questions such as “Which of the following characters in an ancient script represents an animal?” After guessing between two hieroglyph-like symbols, either of which could be an animal, participants are randomized to learn that their guess was correct (success feedback) or incorrect (failure feedback). In the test phase, participants are then re-presented with the initial two hieroglyph-like symbols and answer a similar question: “Which of the following characters in an ancient script represents a *non-living* stationary object?” Participants who were “correct” in the learning phase can infer that the symbol they did not select before is the non-living object (since the one they did select was the animal). Likewise, participants who were “incorrect” in the

learning phase can infer that the symbol they did select before is the non-living object (since the one they did not select was the animal).

Whereas there are some contexts in which failure contains no useful information and disengaging from it is adaptive and desirable (e.g., sunk costs situations, Arkes & Blumer, 1985; Thaler, 1999), this is not true in the Facing Failure game. In this game, engaging with failure is the optimal thing to do. Participants who answer correctly in the test phase receive a monetary bonus. They are rewarded for learning. Engaging with failure in this game is a sign of successful self-regulation, just as disengaging from failure is a sign of unsuccessful self-regulation.

In one field study, over 300 U.S. telemarketers played the Facing Failure game. Telemarketers answered questions about customer service, a topic related to their profession. In the learning phase, each question (e.g., “How much money, annually, do U.S. companies lose due to poor customer service?”) had two possible answers (e.g., “A. Approximately \$90 billion, B. Approximately \$60 billion”). After answering each question and receiving feedback, participants entered the test phase, in which they were presented with close iterations of the initial questions. As evidenced by scores on the test, telemarketers underlearned from failure. In fact, from failure feedback, telemarketers learned nothing at all (test scores were not significantly different than 50%, which is what we would expect if they guessed).

This tendency to underlearn from failure was robust. It occurred when changes were made to the game content, samples, and domains—for example, when customer service questions were replaced by questions about relationships (“Which of these two couples is a real couple?”). It persisted when incentives rose. Even when participants had the chance to earn a learning bonus that was 900% larger than the participation payment, players learned less from failure than success.

Part of the reason players underlearned from failure is because when they failed, they stopped paying attention. Not paying attention compromises recall, making learning all but impossible. Consider a batter who strikes out at the plate and stops paying attention. The batter will not remember the way the pitch crossed the plate, how they swung, or why they struck out. So too, in the academic context, researchers may not fully think through experiments that fail, and as a result, not realize that they contain useful information.

In a variant of the Facing Failure game, we found evidence for this process. In the learning phase, one group of participants answered a series of binary-choice questions, following

which they were randomized to receive failure feedback (“You are incorrect!”) or no feedback at all (Eskreis-Winkler & Fishbach, 2019, Study 3). When we asked participants to recall their answer choices minutes later, participants who received failure feedback remembered less than participants who received no feedback at all.

What Do People Learn From Failure About Their Ability and Control?

The lessons people “learn” from failure are often conclusions they draw about themselves. Failure can prompt people to make inferences about their aptitude and lack of control. For example, when humans find themselves unable to avoid unpleasant noise, they learn that they cannot control their circumstances. Even when control is re-introduced, people do not take action because they have learned that they are helpless (Seligman, 1975). Learned helplessness can have long-term effects. Believing that one lacks control in the face of adverse events is a risk factor for depression (Abramson, Seligman, & Teasdale, 1978).

Failure can also undermine perceived commitment if the person who fails infers that they will not succeed or do not care to. Negative feedback lowers peoples’ confidence that they can achieve a goal (i.e., expectancy) as well as how much they care about it (i.e., value; Atkinson, 1964; Bandura & Cervone, 1983; Lewin, 1935; Weiner, 1974; Zajonc & Brickman, 1969), potentially leading to the ‘what-the-hell’ effect (Cochran & Tesser, 1996; Soman & Cheema, 2004). Realizing their fragile commitment, novices seek positive feedback over negative feedback to maintain motivation (Kluger & DeNisi, 1996). In one study, students in a beginner French class sought an instructor predisposed to give positive feedback which bolstered their commitment to the class (Finkelstein & Fishbach, 2012).

Experienced individuals or experts (i.e., those who have been pursuing a goal for a while; Finkelstein & Fishbach, 2012) are partially immune. Since experts’ commitment is less fragile, they are less affected by failure (Louro, Pieters, & Zeelenberg, 2007). For example, when students enrolled in an environmental club—i.e., those with a strong interest in the environment—received negative feedback on their recycling habits, they became more likely to donate to environmental causes. In contrast, negative feedback led the average student to donate less (Finkelstein & Fishbach, 2012). Thus, whereas failure undermines commitment and motivation for non-experts, it can have the opposite effect on experts.

Ironically, when people disengage from failure, it can lead them to develop an inflated self-view. Unlike the negative beliefs that people form about themselves when they reflect

directly on failure, not paying attention to failure can lead people to think too *highly* of themselves. In one study, investors who accumulated an equivalent number of successful and failed investments paid less attention to the failures, which led them to become overconfident over time (Gervais & Odean, 2001; see also Langer, 1975). The problem can be bi-directional: while not learning from failure inflates the ego, people who are narcissistic—those who hold overly inflated positive views of the self—are more emotionally reactive in the face of failure (Rhodewalt & Morf, 1998) and have a harder time learning from failure (Liu et al., 2021).

In sum, people struggle to learn from failure. When it is possible to avoid attending to failure, people do. They tune out. When failure cannot be ignored, people look at failure but tend to underlearn from the experience. Reliably, people learn less from failure than from success. The lessons people do “learn” from failure are often about the self. People form maladaptive beliefs about their lack of control or lack of commitment, inferring from failure that they cannot succeed or deciding that they do not want to.

Part II: Why Failures Are Hidden

Our theoretical framework suggests that when people fail, emotional and cognitive barriers make learning a challenge. First, we elucidate these barriers. Next, we propose how each might be addressed to promote learning.

Emotional Barriers

In large part, contemplating failure is hard because failure is a threatening experience. Indeed, when a failure threatens peoples’ sense of self-worth, they can react in ways that undermine not just their learning, but also their mental and physical health, in an effort to preserve their sense of self (Crocker & Knight, 2005; Crocker & Park, 2004). Thus, while people may want to learn from failure, they often hold a competing goal that wins out: to feel good about themselves (Grundmann, Schiebe, & Epstude, 2020). The desire to see oneself as a good, competent person is a strong motivational force (Baumeister, 1998; Sedikides & Strube, 1997). When this goal wins out, people disengage from failure.

We found evidence for the emotional barrier in the Facing Failure game. In one iteration of the game, players self-reported their self-esteem after receiving feedback. Players who received failure (vs. success) feedback reported lower self-esteem, and this mediated the effect on their lower levels of learning (Eskreis-Winkler & Fishbach, 2019, Study 4). In our game, people failed to learn when there were economic costs for tuning out from failure. In situations

where the benefits of learning from failure are lower-stake, we would expect the emotional barriers to learning from failure to be even more pronounced. If people do not have an immediate reason or incentive to learn from failure, they ought to be even more motivated to tune out, holding the unchallenged goal to protect the ego.

The desire to feel good about oneself can also lead people to change their *beliefs* following failure. In one series of studies, participants who initially failed predicted—erroneously—that subsequent success would make them less happy than it actually did, the so-called sour grape effect (Sjastad, Baumeister, & Ent, 2020). This change in beliefs undermined interest in the task in general, and interest in learning from failure in particular. After all, if one no longer cares about succeeding in a task, why learn from failure?

The desire to feel good about oneself may also undermine learning from failure by making it difficult for people to engage in processes that would otherwise promote learning. Take regret for example. Regret is a counterfactual emotion that leads people to consider what they did wrong and how they could have done things differently (Zeelenberg & Pieters, 2007). Counterfactual thinking, more broadly, is a cognitive tool to imagine how things might have turned out better (Byrne, 2005, 2016; Epstude & Roese, 2008; FitzGibbon et al., 2021; Kahneman & Miller, 1986; Miller et al., 1990; Roese, 1997; Roese & Epstude, 2017; Summerville, 2011). For example, in one study, participants prompted to engage in upward counterfactual thinking after working through an anagram task—that is, they were prompted to consider how they might have done better—improved their performance on a subsequent trial (Epstude & Roese, 2008; Reichert & Slate, 1999). Regret likewise leads people to learn from past mistakes and course correct in the future (Baumeister et al., 2007; Zeelenberg & Pieters, 2007). For example, when children become developmentally old enough to experience regret, they learn more from failure (O'Connor et al., 2014).

As helpful as these emotions might be in helping people to focus on and learn from failure, they tend to be infrequent. Counterfactual thoughts are more common following negative events than positive ones (Epstude & Roese, 2008; Roese & Epstude, 2017), but the actual rate at which people spontaneously counterfactualize is low. For example, in one study that examined 8- to 11-year-old children, only 5% of children generated counterfactual thoughts spontaneously (Guajardo et al., 2016). In another study of college students, only 18% of students spontaneously engaged in counterfactual thoughts when asked to consider their satisfaction with a task they had

just completed (Hafner et al., 2012). So too, the appearance and detectable benefits of regret are not sufficiently widespread. They depend on the type of mistake being re-examined as well as the passage of time (Gilovich & Medvec, 1995).

Given the strong motivation people have to see themselves in a positive light (Baumeister, 1998; Sedikides & Strube, 1997), it is not surprising that psychological processes like counterfactual thought and regret that hold promise as tools for learning, are often absent. Moreover, even when these processes do occur, some research suggests that learning from them is not straightforward. For example, in the Monty Hall paradigm, participants who engaged in counterfactual thinking became less likely to learn from their mistakes or to discover the correct answer to the paradigm (Petrocelli & Harris, 2011).

Emotional Barriers – How They Can Be Overcome

We advocate two approaches to reduce the ego-threat associated with failure. The first is to remove the ego from failure. If failure is not ego-threatening, people have less reason to tune out. The second approach is to shore up the ego so people are secure enough to face an ego-threatening failure and learn from it (see summary in **Table 1**).

The cleanest way to remove the ego from failure is to literally remove the self—that is, to learn from someone *else's* failure. Others' mishaps do not involve one's ego, and therefore, are not threatening. If anything, the downward social comparison to a failing other might boost the observer's self-esteem (Suls, Martin, & Wheeler, 2002). Watching another person try and fail allows the observer to learn about wrong moves without compromising the learner's ego or motivating the learner to tune out.

Indeed, in one study we found evidence that *removing* the ego from failure would lead people to *tune in* and learn. In this study, half of participants completed the learning phase of the Facing Failure game themselves, receiving feedback on their own answers, whereas the other half of players watched someone *else* play and observed the feedback received by this other person. Replicating prior results, players learned less from their own failure than their own success. But they learned just as much from others' failures as others' successes (Eskreis-Winkler & Fishbach, 2019, Study 5). Vicarious learning is often inferior to personal learning because it is less emotionally involving (Bertsch, Pesta, Wiscott, & McDaniel, 2007). Yet, because it is less emotionally costly to watch someone else fail than to fail oneself (Crocker,

2004), people attend more closely to others' failures than to their own, and this enhances learning.

One implication of this is that negative role models should be effective teachers. Indeed, when people consider others who have experienced some sort of failure or problem—that is, a negative role model—they learn from these models and change their behavior to *not* to be like this model whose actions or outcomes they wish to avoid (Lockwood, 2002; see also Lockwood et al., 2002). Interestingly, in addition to learning from others' failures, people also learn from others' attitudes towards failure. For example, children are more likely to have adaptive beliefs towards challenge and failure when their parents view failure as enhancing, as opposed to debilitating (Haimovitz & Dweck, 2016, 2017).

Another way to remove the self from failure is with cognitive distancing techniques. When people cognitively distance, they think of a personal experience from the perspective of a neutral third-party. For example, they might ask “why did Ethan fail?” instead of “Why did I fail” (Kross et al., 2014). Distancing techniques remove the ego less completely than learning from others, but distancing techniques are easier to implement and provide a way to learn from personal failure.

A second approach is to shore up the ego. This can be done in several ways. One is to think about failure in a way that flips failure into a source of confidence. For example, in one series of studies, people who had failed in various domains were invited to draw on their failures to advise others (Eskreis-Winkler, Fishbach, & Duckworth, 2018). For example, people struggling with weight loss gave advice to others who had broken their diets, and people who were unemployed on the job market gave motivational advice to others who were similarly demotivated. The motivational implication of giving advice is that one possesses, as opposed to lacks, the ability to succeed. Indeed, in one study, middle school students who advised younger students—compared to those who received advice from experienced teachers—spent more time on homework over the following month (Eskreis-Winkler et al., 2018). Likewise, high school students who gave school advice to younger students earned higher grades than controls over the following academic quarter (Eskreis-Winkler, Milkman, Gromet, & Duckworth, 2019).

The ego can also be secured by reminding oneself of one's ability, commitment, or expertise. One of the reasons experts tolerate failure better is because experts feel more secure in their commitment and this protects them from the ego-threatening effects of negative feedback

(Finkelstein & Fishbach, 2012; Louro, Pieters, & Zeelenberg, 2007). Indeed, when 7th grade teachers accompany their critical, constructive feedback to students with an encouraging note that assures the student of his/her ability and skill, this raises the percent of students who opt to revise their essays, as well as the quality of the revised essays (Yeager et al., 2014).

A final way to shore up the ego is to recast failure as an opportunity to learn. A failed experience is a success when the goal is learning. Indeed, people who hold a growth mindset—those who believe that their abilities and beliefs can develop—persevere in the face of failure (Dweck, 2006; Dweck & Leggett, 1988). People who believe they can grow and develop do not view failure as diagnostic. This buoys their confidence in the face of failure, allowing them to attend to and learn from these experiences. In one study, teaching students a growth mindset raised objective academic achievement and likewise increased the rate at which students enrolled in challenging coursework (Yeager et al., 2019). In this population-level study, students who learned a growth mindset benefitted most when they were actively dealing with challenges in school, and when teachers in the classroom supported challenge-seeking among students (Yeager & Dweck, 2020).

Table 1

Table of Intervention Approaches

Barrier Addressed	Intervention Target	Description
Emotional	Remove the Ego	Learn from others: Look at and learn from others' failures
		Distancing: Adopt a 3 rd party perspective
	Secure the Ego	Advice-giving: Give motivational advice to others
		Expertise/ability: Remind people of their ability or expertise
		Growth mindset: Teach people that they can grow and develop
Cognitive	Reduce Required Effort	Highlight information in failure: Tell people that failure can teach them what to avoid
		Familiar domains: People are less biased in seeking confirmatory information when the domain is familiar to them (e.g., social in nature)
	Increase Cognitive Resources	Bandwidth: Increase attentional bandwidth by allocating more time to the task and/or engaging with fewer concurrent tasks
		Practice: With practice, people become more fluent and fewer cognitive resources need to be devoted to the task at hand.
Culture	Environments that promote learning from failure (e.g., a prevention-focused culture, a culture that celebrates failure)	

Cognitive Barriers

When emotional barriers are removed, people might still struggle to see the information in failure. This is because cognitive barriers keep people from seeing this information, for at least two reasons.

First, no one is aiming for failure. People almost never *expect* to fail. This makes learning from failure cognitively difficult, since people tend to overlook contradictory or unexpected information. Rather, people exhibit confirmation bias, selectively generating and attending to confirmatory evidence (Nickerson, 1998).

In the Wason Selection Task (Wason, 1968), a famous example of biased, confirmatory information search, participants must determine the truth of a pre-established rule (i.e., “Every card with a circle on one side has yellow on the other side”). Participants then choose which cards to flip to determine the rule’s veracity. Whereas players intuitively flip cards that confirm the hypothesis (e.g., they flip cards with circles to see if the back is yellow), they do not see the use in falsifying the hypothesis (e.g., flipping a red card to be sure there is not a circle on the

back). That is, people find it easier to see the value in tests they expect to be successful than in tests they expect to fail. If information that violates expectations receives less attention, failure, which violates expectations, may get ignored.

Second, even when people do in fact attend to failure, learning from failure is less direct than learning from success. Learning from success requires noting what one did right and repeating it. In contrast, for failure to be informative, people need to deduce what an incorrect response teaches about the correct response. Learning by elimination requires more mental effort. Since people are cognitive misers (Stanovich, 2009) they struggle to see the information in failure more than the information in success.

The **Mystery Box game** demonstrates this empirically (Eskreis-Winkler & Fishbach, 2020). In this game, failure is engineered to be more objectively informative than success. Players learn about three boxes, each containing a success (i.e., a monetary win) or a failure (i.e., a monetary loss). Specifically, the three boxes contain (a) a large success, (b) a moderate success, and (c) a small failure (for example, they might contain +\$0.80, \$+0.20 and \$-0.01). The player's goal is to win as much money as possible. Before beginning the game, players choose which information—information on the moderate success, or information on the small failure—will be most valuable to learn.

In this game, the failure contains better information: learning the location of the losing (i.e., failure) box (\$-.01) statistically raises a player's winnings more than revealing the location of the moderate win (\$.20), because knowing to avoid the failure guarantees a larger gain (\$.20 or \$.80). (While knowing the location of the large win would be most useful, revealing this is not an option.) Nevertheless, across a series of studies, roughly a third of participants fail to reveal the location of the failure because they are unable to see that failure contains better information.

In sum, cognitive barriers make it difficult for people to see the information in failure. Even when "failure" is a reveal, not an actual failure—and thus, not at all ego-threatening—people struggle to see that failure contains useful information.

Cognitive Barriers – How They Can Be Overcome

Given that it is cognitively harder to see the information in failure than the information in success, anything that can be done to make spotting this information easier ought to increase learning. This can be done in at least three different ways: reduce the mental effort required to

learn, increase the availability of cognitive resources, or change the culture around failure (see **Table 1**).

Pointing out to people the information in failure lessens the effort required to learn, and thus, ought to facilitate learning. We discovered the promise of this approach in a study that used the Facing Failure game (Eskreis-Winkler & Fishbach, 2020). While some participants completed the standard game, for others, failure feedback was accompanied by this message: “TAKE NOTE: there were only two answer choices to the question (copied below). Based on the feedback above, you can learn the correct answer! It is whichever choice you did not select initially.” Highlighting the informational value of failure in this way increased players’ ability to see and extract the information in failure.

Another way to reduce the requisite mental effort is to consider the domain. People find it easier to reason in some domains—for example, the social domain—than others (Cosmides, 1989). For this reason, people are more likely to perform un-intuitive cognitive operations for social versus non-social stimuli. Thus, we speculate that people may be better able to extract information from failure in the social realm. An adult who loses track of time and misses a meeting with friends may tune in and learn more from this failure than an adult who loses track of time and misses their train. Failures framed from a social angle may increase peoples’ ability to reason and learn from them.

Other strategies could increase the availability of cognitive resources. For example, allocating more time to learning or engaging in fewer concurrent tasks may improve peoples’ ability to learn from failure. So too, repeated experience and practice could help. We speculate that part of the reason experts find it easier than novices to learn from failure, beyond their stronger commitment, is because their behavior is well-practiced, which frees up cognitive resources for learning.

Finally, culture matters, as culture can influence goal orientation in ways that implicate learning. People vary in their goal orientations. Prevention-focused individuals aim to minimize negative outcomes (e.g., to prevent loss) while promotion-focused individuals aim to maximize positive outcomes (e.g., to achieve gain; Elliot & Thrash, 2002). Prevention-focused individuals are therefore more likely to notice failure and recall it later than promotion-focused individuals, who notice and recall success (Higgins & Tykocinski, 1992). These key variations in goal orientation have emerge on a societal level, with some cultures

encouraging a prevention-focused and thereby changing peoples' attitudes towards failure. For example, eastern cultures emphasize the value of fitting in, which encourage people to adopt a prevention focus (Heine et al., 1999). In these cultures, people have heightened attention to failure and mistakes, compared with individualistic cultures, which emphasize pursuing success (Heine, Takata, & Lehman, 2000; Elliot, Chirkov, Kim, & Sheldon, 2001; Lee, Aaker, & Gardner, 2000; Heine et al., 2001; for a replication see Shu & Lam, 2016; for further discussion see Lockwood et al., 2005).

Extrapolating from these findings, individuals with a prevention-focus—due to personality or culture—may also be more likely to *learn* from failure. While it is unlikely that these individuals learn more from failure than success (recall that in our Facing Failure and the Mystery Box game, we found that failure has a main effect on lowering learning), they might learn more from failure than those with a promotion-focus goal orientation. Importantly, one potential remedy to increase learning from failure involves developing a local culture that emphasizes learning from failure (Edmondson, 2011). Indeed, many organizations undergo cultural shifts to embrace learning from failure.

In Part II, we suggest that both emotional and cognitive barriers block people from seeing the information in failure and learning from it. Due to both types of barriers, people struggle to attend to the information in failure, and as a result, fail to learn.

Part III: What People Miss

If people overlook the information in failure, does this matter? We argue that it does. First, because ignoring the information in failure means missing out on useful lessons. If individuals miss out on useful lessons, this has implications for the self and also for the social group. If people do not learn from failure, this information does not transfer to the broader society and society misses out on the lessons in failure.

Second, ignoring failures may do more than simply slow learning. It may mean that information gets lost, if the information in failure is different from the information in success. Thus, we also explore what, specifically, people miss out on when they overlook failure.

Losses for the Social Group

The struggle to see information in failure naturally slows down learning for the individual. When people do not look at their own failures—due to the emotional and cognitive barriers explained above—they do not learn from a large chunk of their own experiences.

Beyond the individual, this tendency to ignore failure also affects society at large because it means failures do not get shared. People share failure less than success. When interacting with others in person (Tesser & Rosen, 1975) as well as online (Berger & Milkman, 2012; Wojnicki & Godes, 2008), people remain mum on negative news. In fact, a quick Google search yields several billion results for the word “success,” in contrast to 553 million—less than half as many—for the word “failure.” This imbalance replicates across major websites and social media platforms. For every two “success” videos on YouTube (~25 million), there is just one about “failure” (~10.9 million). Contrary to the pervasive belief that the news is negative, since 1851, the *New York Times* has published double as many articles containing the word “success” (~596,000) versus “failure” (~370,000).

If the information in failure is undershared, this compromises social learning and group knowledge. If people do not talk about the car mechanic who offers horrible service, no one will know which shop to avoid. More generally, if people do not discuss failed purchases, products, and experiences, this knowledge is lost to the larger group. Social knowledge transmission determines many decisions, including the medicines clinicians prescribe (Iyengar, Van den Bulte, & Valente 2011), the movies people watch (Chintagunta, Gopinath, & Venkataraman, 2010), and approximately 50% of consumer purchases (Bughin, Doogan, & Vetvik, 2010). People regularly adopt others’ memories (Wegner, 1987), tastes (Fishbach & Tu, 2016), and even attitudes (Hardin & Higgins, 1996) as their own. The boundaries between individual and group knowledge are so blurred that most people are unaware where social knowledge ends, and their personal knowledge begins (Sloman & Rabb, 2016).

When people do not share failures, leaving failures hidden in the larger world, this is a loss for social learning. Not only because this information is simply unavailable, but also because negative information on others’ failures leads to learning. People react more strongly to negative events than positive ones (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Kahneman & Tversky, 1979; Rozin & Royzman, 2001; Taylor, 1991) in ways that stimulate learning. For example, compared with positive stimuli, negative stimuli get more attention (Öhman, 2007; Pratto & John, 1991) and deepen information processing (Bless & Fiedler, 2006; Ohira, Winton, & Oyama, 1998; Puig & Szpunar, 2017; Taylor, 1991). It follows that if people shared information on failure in their social groups, others would likely look at that information, process it, remember it, and learn from it—as much or more than they learn from success.

We find evidence that people undershare failure in the lab and in the field. In the lab, using a ‘sharing’ version of the Mystery Box game (see **Box 1**), we discovered that people share success instead of failure even when sharing failure is objectively more helpful to the recipient (Eskreis-Winkler & Fishbach, 2020; for full description of the game, see Part II). In one study, 41% of players erroneously chose to share the location of the moderate win instead of the loss. Participants continued to undershare failure when they were highly (and selfishly) incentivized to help the next participant, and did so regardless of whether the failure was large or small. Even when knowledge of failure was objectively more helpful than knowledge of success, people did not realize this and undershared failure with others.

Box 1. The ‘Sharing’ Version of the Mystery Box Game.

Mystery Box Game Instructions

Time to play! You are going to play two rounds, below. In each round, you choose one box.

ROUND 1:

RED BOX
●

ORANGE BOX
●

GREEN BOX
●

Ok, now time for round 2. You must choose a DIFFERENT box than the one you chose in Round 1.

ROUND 2:

RED BOX
●

ORANGE BOX
●

GREEN BOX
●

Here's what was in the box you chose in Round 1: LOSE 1 CENT.

Here's what was in the box you chose in Round 2: WIN 20 CENTS.

Note: the ordering of these is counterbalanced across participants.

So far, you learned two things today:

You learned which box has WIN 20 CENTS and you learned which box has LOSE 1 CENT.

As a reminder, here are the contents of all three boxes, two of which you have now selected:

- ~Win 80 cents
- ~Win 20 cents
- ~Lose 1 cent

Now, your goal is to share some of your knowledge with the next group of participants to help them succeed on the mystery box task. As a coach, you are only allowed to share ONE tip with the next group of participants to help them win the most possible money. The next group of participants will see your tip before they play the game. Which of the two tips below do you want to share?

- ~ I want to tell the next group of participants which box has LOSE 1 CENT
- ~ I want to tell the next group of participants which box has WIN 20 CENTS

People also undershared failure in the field. Teachers saw less value in telling other teachers about their (anonymous) professional failures versus their (anonymous) professional successes, just as employees were less likely to anonymously share information about their failed versus successful work habits. In the field, whether failure or success is objectively more informative depends on several factors. For example, an outcome that is rarer carries more information (e.g., a bad apple among good ones or a good apple among bad ones) and knowing about the best option (vs. a mediocre one) is better than knowing about the worst one. So too, knowing about an outcome that resulted from internal factors (e.g., one's decision vs. external circumstances) is often more informative. Yet, controlling for these factors, people shared failure less than success.

Why do people undershare failure? The same emotional and cognitive barriers that stymie learning also stymie sharing. Emotionally, people feel threatened by failure. This leads them to tune out from failure experiences and not share them. By not sharing, they can present their best selves to others (Baumeister, 1998; Sedikides & Strube, 1997). Cognitively, people also have a hard time seeing the information in failure, which undermines sharing.

Groups with fluid knowledge transfer—those that transfer knowledge and experience between group members (Argote & Ingram, 2000)—perform better (e.g., Arthur & Huntley, 2005; Collins & Smith, 2006; Mesmer-Magnus & DeChurch, 2009). Along the same lines, stymied knowledge transfer harms performance (Sunstein & Hastie, 2015). Researchers who study knowledge transfer in organizations have traditionally studied how fluidly best practices transfer through a company (Holdt Christensen, 2007; O'Dell & Jackson Grayson, 1999). It stands to reason that sharing failures is also critical for improving performance. Sharing failure-related knowledge provides observers with a safe way to learn from costly, risky failed actions (Bandura, 1961). As a result, there ought to be pronounced benefits that accrue from seeking and sharing failure-related information with others. If people do not share information about things that have gone poorly, others will not know what mistakes to avoid, and are likely to repeat them.

The information in failure is a public good. When it is shared, society benefits. Yet failures are largely undershared. The unfortunate implication is that the information in failed actions fails to transfer to the group.

The High Quality of Failure Information

There are reasons to believe that the information in failure may be qualitatively different, and sometimes more useful, than the information in success. Negative outcomes tend to be *distinct*; they vary from each other, as compared to positive outcomes which are more alike (Alves, Koch, & Unkelbach, 2017; Unkelbach, Fiedler, Bayer, Stegmüller, & Danner, 2008). If failures are more unique, there is more to learn from them. A second and a third failure that are distinct from the first contain useful, additional information. For example, two people that are appropriately friendly behave similarly in a party. In contrast, a person who is too chatty misses the mark on social etiquette in a different way than one who is too quiet. There is new information in each “failure.”

Failure also contains better information than success when failure is rarer—that is, in situations where the key to success is avoiding mistakes. Consider a team in which all managers can mentor with varied success, except one inept manager who provides horrible mentoring. In such a scenario, knowing which mentor is bad is more informative than learning which mentor is good, since knowing the bad apple tells you which to avoid.

There is yet another reason failure often contains superior information: failure violates expectations. People almost never intend to fail. Thus, independent of the relative distinctiveness of success versus failure, or the relative rarity of success versus failure, the fact that failure violates peoples’ expectations may lead the information in failure to be qualitatively better than the information in success.

When schemas are violated, people are surprised (Meyer et al., 1991), and surprising experiences (if they are noted) prompt cognitive elaboration (Pyszczynski & Greenberg, 1981; Wong & Weiner, 1981). For example, journalists write more elaborated articles when reporting on unexpected sports outcomes (e.g., underdog wins) versus expected ones (e.g., the defending champion wins; Lau & Russell, 1980).

Thus, when people communicate about successes or other positive events, they are recounting experiences that confirmed expectations. In contrast, people who communicate about failures or other negative events are typically recounting experiences that violated expectations. This suggests that positive and negative communications will differ in informational value: Negative communications will be rarer but more elaborated. Whereas a consumer who purchases shoes and considers the purchase a success need not elaborate when she tells you about it (e.g.,

“Great shoes!”), someone who purchases a pair of shoes that they dislike will mention that the shoes were bad and likely tell you why—providing more arguments, details, and unique information.

The notion that communications about failure are more elaborated and thoughtful is further consistent with peoples’ hesitation to share negative news with others (Rosen & Tesser, 1970; see also Berger & Milkman, 2012). People hesitate to relay negative information, preferring to discuss positives (Stasser & Titus, 2003). As a result, failures that do get shared ought to be more detailed and thought-through. Since social norms and peoples’ attitudes impede the sharing of negative information, those who clear these hurdles to share negative experiences will likely have thought long and hard about their experience and what they are sharing, which will also result in more elaborated communication.

If information about failure is more elaborated, it ought to be more telling. For example, a consumer reading two negative (vs. positive) reviews of competing products should be better able to distinguish the relative quality of the two products just as a student reading two negative (vs. positive) course reviews of competing courses should be better able to tell which course was a greater success. In a vivid test of this effect, we invited participants to compare only negative or only positive reviews of the same set of theatre films and then to predict the relative box office success of these films one week later. Whereas consumers who wrote positive reviews were recounting a personal success—they thought a movie would be good, they bought tickets to the movie, and indeed it was good—consumers who wrote negative reviews were recounting a personal failure, since these consumers thought a movie would be good, bought tickets to it thinking it would be good, and yet found that it was bad. Participant who compared negative reviews were able to predict which movie earned more money at the box office the following week, whereas participants who compared positive reviews could not (Eskreis-Winkler & Fishbach, 2021).

This telling, predictive power of negative communications—those that recapped failure—generalized across many different types of products and situations. When comparing negative reviews of a series of products, but not positive reviews, people were able to predict the relative rankings of colleges, restaurants, and bestselling books. Likewise, participants who viewed negative reviews of Oscar-nominated films could predict which movie would win the Oscar at a rate above chance, whereas participants who compared positive reviews could not (Eskreis-

Winkler & Fishbach, 2021). Despite the robustness of these results, lay people overlooked the superior informational value of negative reviews, seeking positive reviews before negative ones when trying to determine the quality of products on the market.

Never has the desire to predict success been more apparent. We are currently witnessing an explosion in the growth of prediction markets and geopolitical forecasting tournaments where participants bet on the success of policies, candidates, and even governments (Goldstein, Hershfield, & Benartzi, 2016; Mellers et al., 2015; Tetlock & Gardner, 2016). Usefully, we find that communications about failure can be used to predict success, while communications about success cannot. This finding has actionable implications for anyone with an interest in predicting success. People ought to attend to negative (vs. positive) communications—that is, the information on failure, over the information on success—when deciding which employee to hire, which book to read, which school to attend, or which restaurant to dine in.

In sum, when people avoid negative communications and more broadly, the information in failure, they miss out—on a lot. First, there is a general loss to social knowledge because failures are hidden from the group. Second, there is a loss in not just the quantity of available information, but its quality. When people ignore the information in failure, they miss out on information that is unique: they miss out on the most elaborated, diagnostic, predictive information. This is an unfortunate paradox: the information that people tend to overlook because it seems *uninformative* is in fact the information with the greatest value.

Conclusion

From a young age, we are told that there is information in failure, and we ought to learn from it. Yet, people struggle to see the information in failure. As a result, they struggle to learn. We present a unifying framework that identifies the emotional and cognitive barriers that make it difficult for people to learn from failure.

Understanding these barriers is especially important when one considers the information in failure. The information in failure is both rich and unique—indeed it is often richer, more informative, and more useful than the information in success.

What to do in a world where the information in failure is rich, yet people struggle to see it? One recommendation is to explore the solutions that we propose here. Remove the ego from failure, shore up the ego so it can tolerate failure, and ease the cognitive burdens of learning from failure to promote it in practice and through culture. We believe such techniques are well worth

understanding and investing in, since there is so much to learn from the information in failure when we see it.

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