

Affective Forecasting: Knowing How We Will Feel in the Future

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Imagine coming across a vending machine stocked with various forms of self-knowledge. Press one button and out comes an understanding of your own personality; press another and you've got a fistful of knowledge about your own motives or attitudes. Faced with this enticing array of self-knowledge, the wisest choice might lie in selecting an accurate understanding of your own future feelings.

As we will show in this chapter, predicting one's own future feelings—making *affective forecasts*—isn't easy. People often make small, but systematic errors in forecasting their own emotional responses, and occasionally make more dramatic mistakes (Section I). These failures of self-knowledge stem from a variety of sources (Section II) and carry costs for both individual happiness and societal well-being (Section III). Thus, researchers have begun to identify ways to improve this form of self-knowledge (Section IV). Studying this topic requires methodological care and ingenuity (Section V), but doing so can potentially provide important stepping stones in the pursuit of happiness.

I. What do people know—and not know—about their future feelings?

Because other reviews of the literature offer excellent typologies of affective forecasting errors (e.g., Hsee & Hastie, 2006; Wilson & Gilbert, 2003), here we present only a brief discussion of the most common types of affective forecasting errors. While researchers have focused on identifying the flaws in affective forecasting, it is important to recognize that these flaws in the foreground stand out against a background of reasonably accurate self-knowledge.

Forecasting Errors

One of the most well-known and widely-occurring affective forecasting errors is the *impact bias*—the tendency to overestimate the intensity and duration of emotional responses to future events. Exhibiting the impact bias, people overestimate how happy they will feel at Christmas (Buehler & McFarland, 2001) and how miserable they will feel after failing a driver’s test (Ayton, Pott, & Elwakili, 2007) or seeing their preferred candidate lose an election (Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). The impact bias is usually stronger for negative events, with the effects for positive events often significant but small (e.g., Buehler & McFarland, 2001; Gilbert et al., 1998).

Although the impact bias may be the most ubiquitous form of forecasting error, people sometimes exhibit just the opposite mistake, underestimating the power of their future affective states (e.g., Dunn, Biesanz, Human, & Finn, 2007). This can occur when people fail to appreciate the potency of their own visceral states (e.g., hunger, thirst) in shaping future decisions and preferences. Such intrapersonal *empathy gaps* have been demonstrated for visceral states ranging from hunger (Read & van Leeuwen, 1998) and sexual arousal (Loewenstein, Nagin, & Paternoster, 1997) to the craving for drugs (Sayette, Loewenstein, Griffin, & Black, 2008).

Occasionally, people exhibit even more dramatic forecasting errors, mistaking sources of misery for sources of joy. Affective forecasts that are this far out of whack typically stem from *inaccurate theories* about the determinants of happiness. For example, most of us believe that having choice is beneficial for our happiness. Yet, restricting our ability to choose can sometimes buttress our contentment with what we’ve got. In one study, people were asked to choose a piece of art to take home, and some of them were told that they would have the option to exchange this piece for a

different one. Individuals who were provided with this option experienced less appreciation for their chosen piece of artwork than people who had no such option to exchange. Yet, participants failed to anticipate this detrimental effect of choice, relying instead on the assumption that more choice is better (Gilbert & Ebert, 2002).

Forecasting Accuracy

Although we sometimes make dramatic affective forecasting errors, the most common form of forecasting error—the impact bias—tends to be small to medium. In Gilbert et al.’s (1998) seminal paper, for example, participants consistently overestimated their future affective reactions to positive events (e.g., getting tenure), but the size of this misprediction effect (r) ranged from only .02 to .12 across three different studies. While the effect sizes for mean differences between people’s forecasts and experiences were larger for negative events (e.g., romantic break-ups) across the same three studies (r ’s = .38-.41), it is worth recognizing that this affective forecasting bias is not overwhelmingly large.

Indeed, even if people overestimate the absolute intensity of their future affect, they can still exhibit accuracy in predicting the intensity of their feelings relative to other individuals (Mathieu & Gosling, *in press*). To illustrate, imagine that Paul, Clif, and Ian all make predictions about how they would feel if they got promoted at their jobs, with their predicted happiness scores being 10, 9 and 8, and their actual happiness 8, 7 and 6, respectively. Although Paul overestimates his happiness, he accurately predicts that he will be happier than Clif and Ian. Indeed, a recent meta-analysis of sixteen studies documenting mean differences between people’s forecasted and actual affect showed that people’s affective forecasts on average were correlated ($r = .28$) with their actual

affective experiences (Mathieu & Gosling, *in press*). Thus, despite systematic biases when people predict how they would feel in the future, individuals show some accuracy in predicting their future feelings relative to others. As we will see later in this chapter, affective forecasting errors can have an impact on a variety of important outcomes in the real world (see Rosnow & Rosenthal, 1989 for a discussion of the consequential impact of small effects), but it is important to recognize that people are not entirely without insight into their own emotional futures.

II. Why is self-knowledge in this area limited?

When we make affective forecasts, our capacity for self-knowledge is limited in part because the system we're trying to predict is very different from the system that we use to do the predicting. Our basic ability to experience emotions is an ancient capacity that we share with other animals, whereas our ability to *predict* our emotions appears to be uniquely human—a cool new gadget on the timescale of evolution (Gilbert & Wilson, 2007). According to Epstein's (1998) Cognitive-Experiential Self Theory, emotions are a signature product of the evolutionarily ancient “experiential system,” which rapidly and holistically processes information in a concrete, associative fashion. In contrast, the human ability to forecast emotions seems to rely heavily on the newer “rational system,” which processes information in a slower and more analytical and abstract manner.

Trying to use the rational system to predict the outputs of the experiential system is a little like asking a robot to analyze a poem, and a diverse array of affective forecasting errors arise from this fundamental mismatch (for a more detailed discussion of this perspective, see Dunn, Forrin, & Ashton-James, 2008). As Gilbert and Wilson (2007) argue, “the cortex attempts to trick the rest of the brain by impersonating a sensory

system...but try as it might, the cortex cannot generate simulations that have all the richness and reality of genuine perceptions” (p. 1354). Building on this argument, we use Cognitive-Experiential Self Theory (CEST) to provide a broad framework for understanding *why* simulations and actual perceptions systematically diverge.

Holistic vs. Analytic

According to CEST, one of the key differences between the rational and experiential systems is that the former processes information more analytically. Drawing on the rational system, forecasters zoom in on a target event, imagining the event largely in isolation from its broader context.¹ This approach can lead forecasters to neglect the temporal context, such that a plate of spaghetti smothered in meat sauce is expected to be nearly as appealing whether it’s served for breakfast or dinner (Gilbert, Gill, & Wilson, 2002). This style of thinking also results in *focalism*, whereby people envision a target emotional event while disregarding the important contextual factors that may mitigate its emotional impact (Schkade & Kahneman, 1998; Wilson, Wheatley, Meyers, Gilbert, & Axsom, 2000). When Daniel, for example, is predicting how unhappy he will be if his boyfriend Billy leaves him, he is likely to focus exclusively on how hurtful the break-up will be. The week that Daniel gets dumped, however, may also be filled with abundant sunshine, visits from caring friends, and schoolwork—all of which may contribute to making Daniel’s reaction to the break-up less potent than he expected. Finally, because thinking analytically promotes a focus on the differences between the available options, forecasters tend to overlook important similarities across options (Dunn et al., 2003; Hodges, 1997; Hsee & Zhang, 2004). In contemplating a vacation to

¹ For a more thorough discussion of the role of contextual factors in affective forecasting errors, see Gilbert & Wilson (2007).

Bali versus Belize, forecasters might focus on the fact that Bali has better surfing, while neglecting the fact that both destinations offer interesting wildlife and beautiful weather—leading to an exaggerated belief that Bali will be more fun than Belize.

Hot vs. Cold

As well as processing information analytically, the rational system operates in a relatively “cold” manner, processing information dispassionately, whereas the “hot” experiential system is oriented toward pleasure and pain, promoting a more motivated interpretation of information. The rational system is like a judge, balancing the available evidence, while the lawyer of the experiential system builds a story, fitting the evidence to support a desired perspective. Thus, drawing on the rational system, forecasters may go astray by being too fair and balanced. This tendency results in *immune neglect*, whereby forecasters overlook how experiencers will twist the interpretation of an event after it occurs in order to mitigate negative feelings (Gilbert et al., 1998). For example, after being dumped by Billy, Daniel is likely to focus on Billy’s annoying habits, making him feel better about the break-up in a way that he would not have anticipated ahead of time. The coldness of the rational system also undermines its capacity to appreciate the power of hot, visceral states, resulting in cold-to-hot empathy gaps (Loewenstein & Schkade, 1999). For example, prior to childbirth, many women make the calculated decision to avoid the use of anesthesia during labor—only to reverse this choice in the heat of the moment (Christensen-Szalanski, 1984)².

² The most effective way to combat cold-to-hot empathy gaps seems to lie in giving forecasters a taste of the hot state they will later experience (e.g., Loewenstein et al., 1997). Of course, if forecasters are placed in a hot state and experiences later occur in a cold state, this can result in the converse error, termed hot-to-cold empathy gaps (see Loewenstein, 2005 for a review).

Associative vs. Logical

Whereas the rational system processes information slowly on the basis of abstract logic and conscious appraisal, the experiential system works more quickly by relying on associative thought, interpreting the present through concrete connections to past experiences. This suggests that our emotional experiences may be shaped in part by our implicit associations—which we may overlook if we rely on the rational system in making affective forecasts. Support for this idea comes from a study in which participants were asked to eat a piece of a Red Delicious apple and a piece of Hershey’s Bliss chocolate (McConnell, Dunn, Austin, & Rawn, 2011). They were asked to predict how much they would enjoy each food and to rate their actual enjoyment, as well as completing measures of their implicit and explicit attitudes toward apples and chocolate. Over and above their explicit attitudes, participants’ implicit attitudes toward apples and chocolate shaped their actual enjoyment of these foods, but not their expected enjoyment. As a result, participants’ implicit attitudes predicted their forecasting errors; individuals with strong positive implicit associations toward chocolate (vs. apples) underestimated how much they would enjoy eating Hershey’s Bliss. This suggests that forecasters go astray in part by relying on logic and conscious appraisals, while overlooking the implicit associations that shape actual emotional experiences.

Beyond our associations with individual objects like apples and chocolate, we have a rich network of “if-then” associations that underlie our personalities (e.g., Mischel, Shoda, & Mendoza-Denton, 2002), which forecasters may also overlook. Shortly after the election of Barack Obama, for example, the joy experienced by his supporters was dampened for neurotic individuals, perhaps because his victory triggered

worries about the potential for assassination or the challenges posed by hostile Republicans (Quoidbach & Dunn, 2010). Yet, just prior to the election, participants overlooked their own neuroticism when forecasting how happy they would be if Obama won, thereby exhibiting *personality neglect*.

In short, we have argued that people's simulations of the future are often constructed by the rational system, which operates in a fundamentally different manner than the experiential system. As a result, people may be deprived of accurate self-knowledge because their imaginations are too rational.

III. Implications of Affective Forecasting Errors

Affective forecasting errors are more than academic curiosities. These errors can impair the pursuit of happiness and health, as well as exacerbating social and economic problems.

Personal happiness

As noted at the beginning of this chapter, people occasionally miscalculate their future affective reactions completely. Because affective forecasts play an important role in decision-making (Falk, Dunn, & Norenzayan, 2010), such grave miscalculations could reduce our future happiness by leading us to choose exactly the course of action that would make us less happy. Many of us seem to believe, for instance, that revenge would feel good, which may explain the central place of revenge in both human law and literature. Revenge, however, might be less sweet than we think. In one study, participants were given the chance to exact revenge and punish another player who tried to cheat them out of winning money. Those players who punished the cheater felt worse than players who did not have the chance to exact revenge (Carlsmith, Wilson, &

Gilbert, 2008). Yet, another group of participants in this study predicted that they would feel better if they had the opportunity to punish the cheater. These findings illustrate how our inaccurate affective forecasts could potentially lead us to choose exactly the thing that would make us less happy.

Subtler forms of affective forecasting errors, however, could potentially boost happiness. In one study, participants who were in negative mood—as compared to participants in a neutral mood—predicted that they would experience stronger positive feelings as a result of desirable future events such as having a nice meal or watching their favorite TV show (Buehler, McFarland, Spyropoulos, & Lam, 2007). Furthermore, the stronger people expected their positive affect to be in the future, the happier and more satisfied they felt in the present. Although the researchers did not examine whether these forecasts were biased, integrating this research with previous work on the impact bias suggests that this bias may not be so bad when it comes to positive events. That is, even if a vacation to the Caribbean isn't as fabulous as we imagine, *expecting* it to be wonderful may provide months of pleasurable anticipation (Loewenstein, 1987)

Personal health

In addition to influencing personal happiness, affective forecasting errors have been shown to play a role in health decisions. A wide variety of health problems stem from a lack of exercise, and new research suggests that people significantly underestimate how much they would enjoy exercising (Ruby, Dunn, Perrino, Gillis, & Viel, 2011). Furthermore, the less people expect to enjoy exercise, the less they report intending to engage in it. With obesity poised to overtake smoking as the leading cause of death in the United States (Mokdad, Marks, Stroup, & Gerberding, 2004), this

research suggests that affective forecasting errors may pose a critical obstacle for public health.

Affective forecasting errors may also prevent people from getting tested for serious health problems. In one study, people overestimated how much distress they would experience if they tested positive for HIV (Sieff, Dawes, & Loewenstein, 1999). Given that people are motivated to avoid negative experiences, expecting to suffer great distress after testing could drive people to postpone being tested, thus potentially endangering their own life and the lives of others.

We are often so motivated to avoid suffering that we will do anything to make ourselves feel better, including taking all kinds of ‘feel-good’ substances, rather than simply relying on the power of the psychological immune system. When participants were asked to imagine being rejected in a dating game, they overestimated how upset they would feel and were more likely to want a mood-enhancing pill, compared to people who actually experienced the rejection (Wilson, Wheatley, Kurtz, Dunn, & Gilbert, 2004). This finding tentatively suggests that people may sometimes overestimate their need for drugs and alcohol in coping with life’s setbacks.

Intergroup relations

Affective forecasting errors may play a role in perpetuating stereotyping and prejudice. In one study, White participants overestimated how much negative emotion they would experience during an interaction with a Black person, which they erroneously expected to be more unpleasant than an interaction with a White person (Mallett, Wilson, & Gilbert, 2008). This suggests that affective forecasting errors may lead people to avoid intergroup contact, thereby foregoing experiences that could reduce

racism. Indeed, new evidence demonstrates that helping individuals overcome their overly negative expectations regarding intergroup contact can help to promote the development of friendships across groups (Mallett & Wilson, 2010).

Racism may also be perpetuated because people do not react to it as negatively as they themselves would expect. In one study, college students predicted that they would be very distressed if they saw a White person use a racial slur about a Black person, but other students who actually witnessed this situation were emotionally unruffled (Kawakami, Dunn, Karmali, & Dovidio, 2009). Forecasters also predicted that they would choose to work with the Black victim rather than the White racist on a subsequent task, but experiencers exhibited the opposite preference. These results suggest that, contrary to our expectations, racist acts might have little emotional impact on majority group members and go unpunished.

The findings of those two studies, then, help to explain why racism persists despite apparent changes in explicit attitudes over the past several decades. If I am avoiding interacting with Jamal because I believe that the interaction will be awkward, this might prevent me from challenging my own stereotypical views of him (and Black people in general). At the same time, if I do not challenge my White friends Jeff and Rose when I hear them derogating Jamal because he is Black, Jeff and Rose's negative attitudes towards Blacks will also go unchallenged.

Economic implications

Mispredicting our own emotions can also create economic problems. In particular, recent research suggests that the impact bias may lead to loss aversion. Demonstrating classic loss aversion, participants predicted that losing \$4 would decrease

their current level of happiness more than gaining \$4 would increase their level of happiness (Kermer, Driver-Linn, Wilson, & Gilbert, 2006). A different group who actually experienced either a gain or a loss of \$4, however, did not show the same aversion towards the loss—the \$4 gain and \$4 loss had a similar emotional impact (in opposite directions, of course). Loss aversion creates significant problems for people’s economic behavior in the real world, from investing in the stock market to deciding whether to switch retirement plans (Camerer, 2000). For example, because people value what they have (i.e., what they could *lose*) more than what they could acquire (i.e., what they could *gain*), some people willingly forego the opportunity to choose the many benefits of a new health plan just to preserve the few benefits of their current health plan (Samuelson & Zeckhauser, 1988).

Like loss aversion, the endowment effect can lead to economic problems, from slashing profits to impairing the fluidity of markets. Due to the endowment effect, people value commodities more when they are selling them than when they are buying them. When buyers’ agents were asked to make an offer to buy coffee mugs from their owners, the agents consistently made unacceptably low offers to the owners, resulting in few sells (only 19% successful transactions) and low earnings for the agents (only one-third of the amount agents would have earned had they been able to accurately evaluate the value owners placed on their mug; Van Boven, Dunning, & Loewenstein, 2000). Importantly, agents’ inability to predict the value placed on the mug by the owner was at least partially due to the agents’ inability to predict how they themselves would value the mug if they were owners (an affective forecasting error). In fact, more recent research has shown that when buyers already own an identical mug, they are willing to pay just as

much for it as sellers demand (Morewedge, Shu, Gilbert, & Wilson, 2009), presumably because they already know how it feels to be a mug owner, thus eliminating the source of this forecasting error. In short, people's inability to imagine how they would feel about a commodity if they owned it may reduce financial gains and impair the fluidity and profitability of markets by reducing the number of successful transactions.

IV. How can this form of self-knowledge be improved?

By identifying the mechanisms that underlie affective forecasting errors, researchers have been able to develop simple interventions that directly target these specific mechanisms, thereby improving affective forecasts. Of course, like a flu vaccine that only works against specific viral strains, these immunizations are helpful primarily when they are matched with the corresponding strain of forecasting error. Therefore, researchers have also identified skills and interventions that can reduce forecasting errors across a wide variety of situations, akin to vitamins that improve overall health.

Mechanism-specific remedies

Reducing focalism. Focalism and related problems can be combated by encouraging people to adopt a broader perspective (e.g., Dunn et al., 2003; Hoerger, Quirk, Lucas, & Carr, 2009; Wilson et al., 2000). For example, simply asking students to consider how much they enjoy their regular daily activities, from visiting friends to doing homework, reduced their tendency to overestimate how much school football games would influence their happiness (Hoerger et al., 2009). A less direct, but perhaps longer-lasting, way of reducing focalism among Westerners might lie in living abroad in a more interdependent culture (e.g., Japan). People from interdependent cultures tend to consider contextual factors to a greater extent than do people from independent cultures.

It is not surprising, then, that Asians are less prone to focalism than Westerners (Lam, Buehler, McFarland, Ross, & Cheung, 2005). Given that living abroad can produce measurable changes in psychological phenomena such as creativity (Maddux & Galinsky, 2009), spending a year in Japan, for example, might reduce focalism (although no research has directly explored this hypothesis).

Reducing immune neglect. Another strategy for reducing affective forecasting errors is to tackle our tendency to ignore our remarkable ability to adapt and make sense of new circumstances. In one study, before making predictions about their quality of life after becoming paraplegic, jurors in the Philadelphia County Courthouse were asked to reflect on their ability to adapt to negative circumstances (Ubel, Loewenstein, & Jepson, 2005). This reflection increased the quality-of-life predictions of the jurors (as compared to the predictions of jurors who did not engage in this reflection). Thus, a simple reflection on adaptation may help us make more balanced affective forecasts.

General ‘cures’

Learning from past experiences. In addition to targeting specific mechanisms responsible for our affective forecasting errors, we can make better affective forecasts by using some general ‘cures’. One such intuitive strategy lies in learning from past experiences. Learning from the past, however, is more difficult than we might think (Wilson, Meyers, & Gilbert, 2001). This is true in part because the most unusual past events—those events that are least likely to happen again in the future—are often the most memorable (Fredrickson & Kahneman, 1993; Kahneman & Tversky, 1973). When passengers at a train station were prompted to remember a past instance when they missed their train, they typically recalled rather atypical experiences, in which missing

the train was especially problematic (Morewedge, Gilbert, & Wilson, 2005). As a result, they expected to be quite unhappy if they missed the train they were currently hoping to catch. This forecasting problem was ameliorated when passengers were instructed to remember *multiple* past instances of missed trains, as opposed to just one. Thus, thinking about a broad array of relevant past experiences may be a productive route to improving affective forecasts.

Increasing emotional intelligence. Another general ‘cure’ for our affective forecasting errors is to increase our overall emotional intelligence (i.e., our ability to observe, understand and regulate our emotions). Because some aspects of emotional intelligence (EI) have been shown to improve with training (Nelis, Quoidbach, Mikolajczak, & Hansenne, 2009) and higher EI has been associated with making more accurate affective forecasts (Dunn, Brackett, Ashton-James, Schneiderman, & Salovey, 2007), we might be able to improve the accuracy of our affective forecasts with emotional intelligence training. Of course, increasing emotional intelligence would take more time than simply considering nonfocal future events or relevant past experiences. This method of improving affective forecasts, however, is also likely to have more long-lasting and pervasive effect on our ability to predict our emotions. In this sense, then, emotional intelligence training might be a worthwhile endeavor as a way of reducing the negative personal, societal and economic consequences of affective forecasting errors.

Learning from others. In order to increase our own self-knowledge, we may benefit from looking to others. When predicting how much they would enjoy a speed date with a male undergraduate, female undergraduates made smaller affective forecasting errors if they learned how much another woman had enjoyed the date

(Gilbert, Killingsworth, Eyre, & Wilson, 2009). Indeed, compared to women who had plentiful information about the young man, women who knew nothing *except* how much this other woman had enjoyed her date with him made better affective forecasts.

V. Methodological Issues

While most published affective forecasting studies use rigorous methods, many more potentially interesting studies never make it into the journals because of methodological problems. Thus, we offer several basic recommendations for conducting studies of affective forecasting. Although these principles seem fairly obvious, we can confirm from our reviewing experience that they are often violated.

Give forecasters a fair chance.

Because researchers in this area often set out to show that forecasters make mistakes, it is essential to give forecasters a fair chance to be right. In particular, it is important to ensure that the situation forecasters are asked to imagine matches the situation that experiencers actually encounter. This is harder than it sounds. For example, Kawakami et al. (2009) engineered a complex social situation in which experiencers witnessed a White student utter a racial slur about a Black student. If forecasters had simply been asked to imagine how they would feel after seeing a White student use this racial slur, they might have envisioned a very different situation than what actually transpired. For this reason, in an initial study, the researchers provided forecasters with a detailed description of the situation that experiencers witnessed. Still, because it is impossible for a written description to convey every important detail of a complex social situation, forecasters in a second study were shown a video of the event that experiencers witnessed, from the experiencers' visual perspective. Of course, this use of video would

not be practical in many affective forecasting studies, but regardless of the design used, it is critical for researchers to ensure that the situations forecasters are asked to imagine corresponds as tightly as possible to the situation that experiencers face.

Forecasters and experiencers should be similar to each other.

As well as equating the *situations* that forecasters and experiencers confront, researchers should ensure that the *individuals* doing the forecasting and experiencing are as similar to each other as possible. Of course, this goal can be accomplished by randomly assigning participants to the role of forecaster or experiencer. But, an important strength of the affective forecasting literature is that researchers often examine people's expected and actual reactions to consequential, real life events, typically precluding the use of random assignment. For example, we have been interested in examining the predicted and actual emotional benefits of prosocial behavior, and we have considered surveying people who have just participated in charitable activities, such as the Breast Cancer Walk. On that same day, we could ask other people in the same city to predict how they would feel if they had participated in the walk. Comparing walkers' actual feelings with non-walkers' predicted feelings would, however, be highly problematic. Walkers and non-walkers might differ in myriad ways—from their athleticism and prosocial orientation to their familiarity with cancer—and any discrepancy between experiences and forecasts might stem from these differences rather than reflecting a true error on the part of forecasters. One way to minimize this problem is to survey forecasters and experiencers who are drawn from the same relevant population (e.g., people who have signed up for the Breast Cancer Walk).

Alternatively, researchers can circumvent this problem by using a within-subjects design, in which all participants predict how they will feel after an event, experience the event, and then report their actual feelings. But, using a within-subjects design introduces a different problem: the act of making affective forecasts can sometimes alter people's later emotional experiences (or at least their reports of those experiences). For example, the week before an important soccer match, Dolan & Metcalfe (2010) asked one group of fans to predict how they would feel if their team lost the match, whereas other fans were not asked to make any affective forecasts. When surveyed a week after their team lost the match, the fans who had been asked to make the forecast prior to the game rated themselves a whole point lower on a 10-point happiness scale than the fans who had not been asked to make affective forecasts. In other words, the act of making affective forecasts before the event altered participants' emotional ratings after the event. Of course, making affective forecasts does not *always* pollute later emotional reports (e.g., Ruby et al., 2011), and the advantages of within-subject designs sometimes outweigh this potential problem.

Given that both within- and between-subjects designs have limitations, an ideal approach is to use a hybrid design (Loewenstein & Schkade, 1999), in which half the participants make affective predictions, but all participants report their actual experiences (for an example of this approach, see Ruby et al, 2011, Study 1). Alternatively, researchers can accomplish the same goal by conducting multiple studies and demonstrating that consistent effects emerge using a combination of between- and within-subjects designs (for an example of this approach, see Gilbert et al., 1998).
Distinguish between forecasting extremity, bias, and accuracy.

In part because of the challenges associated with equating forecasts and experiences, researchers sometimes measure only affective forecasts. This can be a reasonable strategy, but if this methodological approach is used, then researchers should not make any strong claims about forecasting bias or accuracy on the basis of their data. Imagine, for example, that competitive horseback riders were asked to predict how they would feel after winning a blue ribbon. If riders who predicted the highest levels of joy also reported spending the greatest number of hours at the stable, one might infer that positively biased affective forecasts serve a motivational function (by propelling people to devote more effort to achieving their goal). This conclusion would be inappropriate—extreme affective forecasts do not necessarily reflect bias. That is, individuals who predict relatively extreme emotional reactions may actually *experience* relatively extreme emotions. Thus, forecasting extremity should not be treated as a proxy for forecasting bias.

It is also important to distinguish between bias and overall accuracy (for an excellent illustration of this issue, see Epley & Dunning, 2006). Most studies have examined forecasting biases—directional errors whereby, for example, people significantly overestimate how good they will feel after a positive event. But it is also possible to examine overall accuracy, by testing the magnitude of affective forecasting errors rather than their direction. Interestingly, compared to Westerners, East Asians are less susceptible to the impact bias, but they show no advantage in terms of accuracy (measured as the absolute value of the difference between forecasts and experiences or the correlation between forecasts and experiences; Lam et al., 2005). Conversely, individuals who are higher in emotional intelligence (EI) make affective forecasts that are

more accurate but no less biased (Dunn et al., 2007). Thus, researchers should first consider whether they expect effects on forecasting bias or overall accuracy and then select methodological and analytical strategies accordingly.

Examine multiple situations.

In order to show that people make systematic affective forecasting errors, it is valuable to demonstrate that the same pattern emerges across diverse types of situations. For example, Gilbert et al. (1998) showed that, due to immune neglect, people overestimated how bad they would feel following romantic break-ups, professional failures, upsetting stories, negative feedback, and political defeats. Demonstrating consistency across different situations is particularly essential for research on individual differences in forecasting accuracy and bias. For example, Dunn et al. (2007) showed that EI predicted how accurately people forecasted their emotional responses in the domains of academics, politics, and sports. In one of these studies, the same participants were asked to report their predicted and actual emotional responses regarding a graded term paper and a presidential election. Forecasting accuracy was significantly—but only moderately—correlated ($r = .28, p < .01$) across these two events. This suggests that individual differences that influence accuracy in one situation may fail to influence accuracy in another. Thus, studies that examine the relationship between individual differences (e.g., gender, personality) and forecasting accuracy in one situation may overestimate the importance of those individual differences for forecasting accuracy more broadly.

While it is important to examine affective forecasting errors across multiple situations, it is less essential to use measures of affect that include multiple items. In an

early review paper, Wilson and Gilbert (2003) argued that single-item measures are often adequate for comparing predicted and actual affect, and subsequent studies have supported this perspective by showing that the same affective forecasting biases emerge regardless of whether single or multi-item measures of affect are used (Dunn & Ashton-James, 2008; Ruby et al., 2011). To provide support for the convergent validity of single-item forecasting measures, Quoidbach and Dunn (2010) asked participants to report their predicted and actual feelings on both a single-item measure of happiness and the twenty-item PANAS (Watson, Clark, & Tellegen, 1988); they found that the single-item measure was highly correlated with PANAS scores for both forecasts ($r = .70$) and experiences ($r = .73$). Demonstrating the predictive validity of single-item forecasting measures, Ruby et al. (2011) showed that participants' intentions to engage in exercise were significantly predicted by their anticipated enjoyment of exercise, regardless of whether anticipated enjoyment was assessed with a single-item or multi-item measure of enjoyment.

In an article entitled, "We Have to Break Up," Robert Cialdini (2009) expressed his disillusionment with the state of modern psychology, arguing that demand for methodologically pristine experiments has made publishing field studies very difficult. In light of this important critique of our field by one of its most distinguished practitioners, we would encourage affective forecasting researchers to continue their study of consequential, real world events, even if this means relying on brief or single-item measure of affect. Whether conducting studies in the field or the lab, researchers should strive to minimize differences in (a) the situations faced by forecasters and experiencers and (b) the types of people doing the forecasting and experiencing. In

addition, researchers should clearly distinguish between forecasting extremity, bias, and overall accuracy, while seeking to uncover similar patterns across diverse situations.

Conclusion

Returning to our self-knowledge vending machine, we have seen that a number of errors arise when we try to predict our future emotions—metaphorically speaking, when we’re expecting Coke, we very often get Pepsi, and occasionally end up with a totally unexpected pack of peanuts. Many of these errors arise because of differences in the mental machinery that underlies our ability to experience emotions and our ability to anticipate them. Although such errors are sometimes harmless, they can pose obstacles to the well-being of both individuals and societies. By using clever, rigorous methods, however, researchers have successfully identified ways to overcome these obstacles, thereby helping people get what they expect, or at least expect what they’re getting.

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