AFFECTIVE FORECASTING: THE EFFECTS OF IMMUNE NEGLECT AND SURROGATION

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Studies of affective forecasting examine people’s ability to predict (forecast) their emotional (affective) responses to future events. Affective forecasts underlie nearly all decisions people make and the actions they take. However, people engage in systematic cognitive errors when making affective forecasts and most often overestimate the intensity and duration of their emotional responses. Understanding the mechanisms that lead to affective forecasting errors (e.g., immune neglect) and examining the utility of methods for improving affective forecasting errors (e.g., surrogation) can provide highly valuable information for clinicians as they assist clients in determining their goals both for therapy and for life. The first purpose of the current study was to determine if affective forecasting errors due to immune neglect lead to misjudgments about the relative emotional impact of minor versus moderate negative experiences (i.e., trauma severity). The second purpose was to examine the utility of surrogation for improving affective forecasts. Potential interaction effects between these two variables were also examined. The current study utilized a 2 (Trauma Severity: minor, moderate) X 3 (Prediction Information: surrogation information only, simulation information only, both types of information) experimental design. Undergraduates were recruited via the SONA system and randomly assigned to one of the six experimental conditions. A preliminary study was conducted to obtain surrogation information for use in the main study. All participants in the main study predicted how they would feel 10 minutes after receiving negative personality feedback, using a 10-point scale ranging from (1) very unhappy to (10) very happy. These predictions constitute their affective forecasts. All participants then actually received the negative personality feedback.
(ostensibly from another participant, a peer, in a nearby room) and reported their actual affective states ten minutes later, using the same scale. These ratings constitute their affective reports. Affective forecasting error was calculated as the difference between affective forecasts and affective reports. Results showed the affective forecasts of participants in the moderate trauma severity condition were significantly less accurate than those of participants in the minor trauma severity condition, providing evidence of immune neglect. Surrogation information significantly improved the accuracy of affective forecasts when participants were deprived of simulation information. Limitations of the current study and implications of the findings are discussed.
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INTRODUCTION

Imagine yourself in the following situations: You are watching the last play of the Super Bowl and it will determine whether your favorite football team wins the game. You are about to find out if the presidential candidate you voted for wins or loses the election. You scratch off a lottery ticket and win a big payout. You receive an award for outstanding employee of the year. Your fiancé or spouse dumps you. You are denied tenure. You are a graduate student who has applied for internship and you match with your first choice.

In each of these cases, people predict strong emotional reactions to upcoming events that will leave them with feelings of long-lasting elation or prolonged devastation. The literature does not support this. Research on affective forecasting indicates that our ability to correctly predict our emotional responses to future events is deeply flawed.

Affective Forecasting

Studies of affective forecasting examine people’s ability to predict (forecast) their emotional (affective) responses to future events (for overviews, see Gilbert, Driver-Linn, & Wilson, 2002; Loewenstein & Agner, 2003; Loewenstein & Schkade, 1999; Wilson & Gilbert, 2003; Wilson & Gilbert, 2005). We are all motivated to maximize our happiness. We want to experience positive emotions and we want to avoid negative emotional experiences. The decisions we make and the actions we take are based on what we believe will ultimately bring us the most pleasure and/or allow us to avoid the most pain. However, our ability to predict our hedonic reactions to future events is quite flawed, and, as it turns out, we are rarely as pleased or displeased with our outcomes as we imagined we would be (Wilson & Gilbert, 2003).

In regard to the accuracy of affective forecasts, Wilson and Gilbert (2003) have identified
four facets of emotional responses to consider: valence, specificity, intensity, and duration. When making predictions regarding the valence of an emotional response, we ask ourselves the question, “will this make me feel good or will this make me feel bad?” When predicting the specificity of an emotional response, we ask ourselves “will this make me feel happy, proud, amused, or a combination of all three?” or “will this make me feel sad, afraid, angry, or a combination of all three?” When predicting intensity and duration, we ask ourselves the questions “how good or how bad will I feel?” and “how long will I feel good or bad?”

According to Wilson and Gilbert (2003), we are adept at making predictions about the valence of our emotional responses. We know that, in general, getting a raise is likely to make us feel good, while getting fired is likely to make us feel bad. Yes, that first drive in our brand new Mercedes will be a positive emotional experience and, yes, finding that first scratch on our brand new Mercedes will be a negative emotional experience. We get it. A lower score on our golf game is good. A lower score on our credit report is bad.

When predicting our emotional responses, we also need to determine the specific emotions we are likely to experience. In most cases, people tend to be quite accurate in regard to predicting the specificity of their emotional responses. For example, in a study by Robinson and Clore (2001), participants were shown several emotion-provoking photographs and rated their reaction on 20 separate scales of emotion. Before participants were actually shown the photos, they were given written descriptions of them and used the same 20 scales to predict what their emotional reactions would be. Results indicated participants were quite accurate in their predictions that they would be disgusted by the photo of a filthy toilet and would experience more fear when presented with a photo of a snarling wolf than when presented with a photo of lovers kissing.
However, individuals are sometimes overly simplistic when predicting the specificity of their emotional responses to complex social situations and fail to account for the precise blend of both the negative and positive emotions they will experience. For instance, when college students imagine their day of graduation, they may focus on the emotions of pride and joy, while failing to consider the feelings of apprehension about finding a job or the feelings of sadness about leaving friends behind (Larsen, McGraw, & Cacioppo, 2001).

A study by Woodzicka and LaFrance (2001) demonstrated how failing to account for the complex nature of a social situation can lead individuals to error in their prediction of the dominant emotion they will experience. The researchers provided female participants with a detailed description about a job interview and asked them to predict how they would feel if they were asked a set of specific questions considered to be sexually harassing. The women predicted that their predominant emotion would be anger and that they would experience only a minor amount of fear. However, when women were asked the sexually harassing questions in reality, during an actual job interview, fear was the predominate emotion experienced and only a few reported feelings of anger.

Although people are very adept at predicting the valence of their emotional responses to future events and are often accurate when predicting the specificity of the emotions they will experience, people perform poorly when predicting the intensity and duration of future emotional reactions (Wilson & Gilbert, 2003). Individuals almost always overestimate the intensity and duration of their emotional reactions to future events. For example, people are likely to believe that getting fired will leave them feeling disgruntled and anguished, whereas they expect winning a Hawaiian vacation to bring joy and excitement into their lives. However, as we shall see, such
events are most certain to be less anguishing (or joyful) than we anticipate and our anguish (or joy) will fade sooner than we anticipate.

The Impact Bias

The most pervasive systematic error demonstrated in studies of affective forecasting is the tendency for people to overestimate the intensity and duration of their emotional reactions to future events. This tendency is termed the impact bias (Gilbert, Driver-Linn, et al., 2002). Since the initial demonstration of this affective forecasting error (Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998), dozens of studies have been conducted, by an increasing number of investigators, in both the laboratory and field. The impact bias has been demonstrated with many different populations (e.g., college students, university professors, voters, sports fans, dieters, medical patients) and across a wide range of minor and major events, both positive and negative (e.g., romantic breakups, relocations, personal insults, sports victories, electoral defeats, winning prizes, failing exams, learning results of HIV tests). For reviews of the impact bias, see Frederick & Loewenstein, 1999; Gilbert, Driver-Linn, et al., 2002; Loewenstein & Schkade, 1999; Wilson & Gilbert, 2003; Wilson & Gilbert, 2005.

In an early study of affective forecasting, Gilbert et al. (1998) examined the common belief among university faculty (assistant professors) that tenure decisions would have a strong impact on their long-term happiness. The professors predicted they would be happy if they did receive tenure and unhappy if they did not. Actual happiness ratings obtained later showed that professors who did not receive tenure during the past few years were just as happy as those who had.
Additional studies conducted by Gilbert et al. (1998) demonstrated that voters in a gubernatorial election significantly overestimated how unhappy they would be a month after learning that their candidate lost. They also demonstrated that college students significantly overestimated how unhappy they would feel a few minutes after being rejected for a desirable job and overestimated how unhappy they would be 2 months following the break-up of a romantic relationship.

Other researchers of affective forecasting have provided further evidence of the impact bias. Buehler and McFarland (2001) demonstrated that college students overestimated the emotional impact of receiving an unexpectedly high or an unexpectedly low exam grade. A study conducted by Mellers, Schwartz, and Ritov (1999) showed that dieters overestimated how unhappy they would feel following a setback. The results of a study by Sieff, Dawes, and Loewenstein (1999) revealed that people waiting for HIV test results overestimated how happy they would feel 5 weeks after receiving favorable results and overestimated how unhappy they would feel 5 weeks after receiving unfavorable results.

Mellers and McGraw (2001) conducted several studies on predicted emotional responses, including the anticipation of course grades, weight loss, and pregnancy test results. Students in an introductory psychology course predicted their emotional reactions to all possible grades for the course and then rated their emotional responses when they received their actual grade the following quarter. People engaged in a commercial weight-loss program predicted their feelings in response to achieving or failing to achieve their weight-loss goals and then rated their actual emotions a week after receiving information about their weight changes. Women waiting for pregnancy test results at Planned Parenthood predicted their emotional responses to finding out whether they were pregnant and then reported their actual emotions 10 minutes later, after
receiving their test results. In all of these studies, predicted emotional responses were significantly stronger than actual emotional responses.

Wilson, Wheatley, Meyers, Gilbert, and Axsom (2000) found that college sports fans overestimated how happy (or unhappy) they would feel after their favorite team won (or lost) a football game. Just a few days after the game, no differences in happiness between supporters of winning and losing teams were observed.

Dunn, Wilson, and Gilbert (2003) demonstrated that college students vastly overestimated how happy or unhappy they would be after being assigned to a desirable or undesirable dormitory. A year after predicting that their dormitory assignment would have a great impact on their overall happiness, students living in both the undesirable and desirable dormitories were at nearly identical levels of happiness.

People do realize that their emotional responses will lessen with time. However, they significantly underestimate how fast their emotions will fade (Finkenauer, Gallucci, Van Dijk, & Pollmann, 2007). As an illustration, consider a famous study in the literature on psychological well-being by Brickman, Coates, and Janoff-Bulman (1978) which showed that, after just 1 year, the happiness levels of lottery winners were nearly identical to the happiness levels of normal control subjects. Furthermore, this study found only slight differences in life satisfaction between accident victims, who had become paraplegic during the previous year, and normal control subjects.

The findings of this provocative study have been supported by subsequent research. People are more resilient than they think. For example, Wortman, Silver, and Kessler (1993) found that 30% of parents who had babies that died as a result of sudden infant death syndrome never experienced significant depression. Lund, Caserta, and Diamond (1989) found that 82% of
bereaved spouses were well-adjusted within 2 years after the death of their spouse and Suh, Diener, and Fujita (1996) reported that the frequency of positive affect returns to normal levels within a year after the death of a loved one. Similarly, studies have shown that healthy people (i.e., non-patients) consistently overestimate how unhappy they would be in various states of ill-health (Menzel, Dolan, Richardson, & Olsen, 2002; Ubel, Loewenstein, & Jepson 2003). These individuals also tend to believe that having a disability will have a greater impact on their quality of life than is reported by disabled individuals (Riis et al., 2005; Smith, Sherriff, Damschroder, Loewenstein, & Ubel, 2006; Ubel, Loewenstein, Schwarz, & Smith, 2005).

Suh et al. (1996) studied the relationship between the subjective well-being of college students and the number of life events they had experienced in the previous 4 years. They reported only modest correlations between subjective well-being and the number of life events (positive or negative) the student had experienced in the previous 3 months. No correlation was found between subjective well-being and the number of life events experienced in the past 6 months. These findings led Suh et al. (1996, p.1091) to the conclusion that “only recent events matter.” People tend to adapt emotionally to both positive and negative events much faster than they expect. Thus, the more recent an event has occurred, the more likely it is to still be impacting our emotional state. However, even recent events have less of an emotional impact than we expect them to.

All of these studies provide ample evidence in regard to the pervasiveness of the impact bias. This is not to suggest that life events have no impact on us. Of course they do. Finding a million dollars would be awesome. Furthermore, it would be perverse to suggest that tragic events, such as rape or the death of a child, have little emotional consequence. In some cases, the emotional consequences of such tragic experiences may last for years, if not a lifetime. However,
what these studies do show is that the impact of events, whether truly terrific or profoundly tragic, is demonstrably smaller and less enduring than we expect them to be.

Major Causes of the Impact Bias

Research has focused on two major causes of the impact bias. The first major cause of the impact bias is focalism (Wilson et al., 2000), which refers to people’s failure to anticipate the extent to which other, unrelated, events will also occupy their thoughts and influence their emotions. The second major cause of the impact bias is people’s failure to account for the processes of affective adaptation, which attenuate emotional responses to both positive and negative events (Gilbert et al., 1998; Wilson & Gilbert, 2008).

Focalism

One major cause of the impact bias is focalism: people’s tendency to overestimate the impact that one event – or one aspect of an event – will have on their overall sense of well-being (Loewenstein & Frederick, 1997; Schkade & Kahneman, 1998; Ubel, Loewenstein, & Jepson, 2005; Wilson et al., 2000). In a simple demonstration of focalism, Schwarz (1996) asked college students two questions: “How happy are you?” and “How many dates did you have last month?” The correlation between these questions was dependent on the order in which they were asked. When the question about happiness was asked first, the correlation was .12. When the question about dating was asked first, the correlation was .66. By focusing on dating first, participants showed a significant increase in how much they believed that one aspect of life would dominate their overall emotional well-being.
Focalism leads to affective forecasting errors in two ways. First, when predicting emotional responses to a specific future event, people pay too much attention to the event in question (the focal event) and underestimate the extent to which other events will influence their thoughts and feelings (Wilson et al., 2000). Secondly, when predicting their emotional responses to alternative events, people focus on the differences between the outcomes and ignore the impact that the common factors will have on their affective states (Dunn et al., 2003; Schkade & Kahneman, 1998). These two types of error are discussed below.

The first type of error due to focalism is relevant when people are contemplating how their emotional lives will be impacted by the occurrence of a specific future event, such as the outcome of a sporting event (“I’ll be ecstatic if the Cowboys win the Super Bowl”). People tend to focus on that one event in isolation. However, such events do not occur in a vacuum, but within the rich contexts of our lives, which happen to be filled with many other events that also capture our attention and influence our emotions. Even the most devoted Tony Romo fans have other things going on in their lives (e.g. work deadlines, dental appointments, phone conversations with friends, oil changes, etc.) that will impact their thoughts and feelings.

Most events have a small amount of highly negative or highly positive defining features and a large amount of mildly negative and mildly positive incidental features (Gilbert & Wilson, 2009). The feel of warm sun on our skin, the sound of ocean waves, and lying on a towel in the sand with our eyes closed are defining features of a day at the beach. For most of us, these features are quite positive. However, there are many other incidental features pertaining to a day at the beach, such as paying $10 for parking (mildly negative), finding a pretty seashell (mildly positive), and having to use a public restroom (mildly to profoundly negative). Our actual
emotional reaction to a day at the beach will be a weighted sum of both the defining features and incidental features of that event.

Although defining features tend to be more powerful, incidental features are more numerous and their combined impact may be considerable. Some incidental features will have a valence opposite of the defining features, and thus will dilute the emotional impact of the defining features. However, when imagining a future event, people tend to focus on the defining features and usually do not take the incidental features into account (Gilbert & Wilson, 2009).

Research confirms that focusing on the defining features of future events can lead to mispredictions about our emotional reactions to them. In a study by Wilson et al. (2000), college football fans were asked to predict how happy they would feel the day after their favorite team won an upcoming game against its arch rival. Before making these predictions, half of the participants were asked, ostensibly as part of another study, to describe the activities of a specific day in the future – which happened to be the Monday following the upcoming football game. These participants estimated the number of hours they would spend on 10 common activities, such as socializing with friends, studying, going to class, and eating. They were also given a sheet of paper and asked to write down what they thought they would be doing each hour of that day.

Results demonstrated that the participants who were instructed to consider the incidental features of the event showed a significantly attenuated impact bias. They made more moderate emotional predictions, which turned out to be more accurate. The participants who were not instructed to consider the incidental features of the event before making their predictions significantly overestimated their emotional reactions to the outcome of the football game.
The second type of error, due to focalism, occurs because people focus too heavily on the differences between two or more outcomes, while ignoring the emotional impact of the important features that are shared across outcomes (Dunn et al., 2003; Schkade & Kahneman, 1998). This type of error is related to Tversky’s (1972) elimination-by-aspects theory of choice, which posits that people simplify choices between options by eliminating, or cancelling out, features that are common to both options. This tendency has been termed the isolation effect, as the distinct features of competing outcomes are considered in isolation from the common features (Kahneman & Tversky, 1979).

When choosing between options, it may be a reasonable and efficient to focus on distinctive features and disregard shared features. However, this may lead to exaggerated expectations regarding one’s future emotional responses to competing outcomes (Dunn et al., 2003). In everyday life, people often engage in affective forecasting when envisioning competing possibilities (e.g., living in city vs. the suburbs, buying a sedan vs. an SUV, ordering French fries vs. a baked potato). Thus, there are many instances in which people may inadvertently give undue weight to factors that vary across options, while giving little to no weight to important factors that are similar across options, when predicting their future emotional responses.

For example, Schkade and Kahneman (1998) asked college students from the Midwest and Southern California to rate their life satisfaction. Participants then rated their satisfaction with specific aspects of their life, including seasonal climate, natural beauty of surroundings, and cultural opportunities. Next, participants predicted the life satisfaction of a hypothetical college student, similar to them, living in the other location (the Midwest or Southern California). Both groups of students predicted that those in California were happier, although in reality both groups of students were equally happy. Evidently, the questions about climate, natural
surroundings, and cultural opportunities (known benefits of living in Southern California) caused those aspects of life to become salient and thus they were considered with exaggerated importance when participants made predictions about life satisfaction in general, while other important aspects of life - common to both locations (e.g. personal health, social relationships, job satisfaction, financial situation) - were discounted and/or ignored.

In another study, Dunn et al. (2003) asked first-year college students to predict their overall level of happiness a year after being randomly assigned to one of several dormitories. The dorms varied greatly in physical characteristics (e.g. location, attractiveness of building, size of room) and thus some were considered desirable, while others were considered undesirable. Students predicted that their dorm assignment would have a large (positive or negative) impact on their overall happiness. However, actual ratings, taken a year after dorm assignments had been made, provided clear evidence of the impact bias. Contrary to their predictions, students had nearly identical levels of happiness regardless of dorm assignment. Students assigned to undesirable dorms were significantly happier than they predicted, and students assigned to desirable dorms were significantly less happy than they predicted.

Furthermore, at the onset of this study, the students were asked to estimate the extent to which 10 different features, related to living in each particular dorm, would impact their overall happiness. Some of these features were physical (e.g. location, attractiveness of building, size of room) and some features were social (e.g. relationship with roommate, sense of community in the dormitory). Interestingly, participants accurately recognized that the social features would have more influence on their happiness than the physical features would. However, when predicting their future happiness in each dorm, they placed much greater weight on the physical features of the dorm than on the social features. Presumably, this was due to an isolation effect,
in which students focused on the physical characteristics, which were highly variable across dormitories and cancelled out the social characteristics, which would be quite similar across dorms.

In a second experiment, Dunn et al. (2003) examined the possibility of isolation effect more directly by replicating the previous study with an additional experimental manipulation, using a new pool of first-year college students. Immediately before predicting their overall happiness a year after being randomly assigned to each dorm, one group of the participants were asked to write about the aspects of dorm life that would be “pretty much the same” across dorms and another group of the participants were asked to write about aspects of dorm life that would “vary a great deal” across dorms. The remaining participants served as a control group and were not asked to answer either of these questions before making their predictions.

As with the first study, results indicated that students who were assigned to desirable dorms significantly overestimated how happy they would be a year later, and students who were assigned to undesirable dorms significantly overestimated how unhappy they would be. Also, students again placed greater weight on the physical features of the dorm than on social features when predicting their happiness a year later, despite their acknowledgment at the onset of the study that social features would be an important determinant of happiness.

However, additional findings showed that the students who were asked to focus on aspects of dorm life that would be “pretty much the same” placed greater weight on the social features when making their prediction of future happiness than did the students who were asked to focus on the aspects that would “vary a great deal.” That is, students seemed to recognize that social features were likely to be similar across dormitories. The students who focused on aspects of dorm life that would be “pretty much the same” prior to making their predictions still
demonstrated an impact bias, however, it was less pronounced than for those who focused on aspects of dorm life that would “vary a great deal” (i.e., physical features). These findings suggest that the impact bias emerged in part due to the influence of an isolation effect. The students focused on the distinctive physical features of the dormitories and disregarded the shared social features, although this tendency was attenuated for the students who were prompted to consider the shared features prior to making their affective forecasts.

*Failure to Account for Affective Adaptation*

The second major cause of the impact bias is people’s failure to account for the processes of affective adaptation, which attenuate emotional responses to both positive and negative events (Gilbert et al., 1998; Wilson & Gilbert, 2008). Wilson and Gilbert (2008) developed a model of affective adaptation represented by the acronym AREA: attention, reaction, explanation, and adaptation. The basic premise is that unexplained events, that are self-relevant, automatically activate these four processes (AREA) in sequence.

First, people pay attention to unexpected events that are self-relevant. In everyday life, people are continually bombarded with huge amounts of sensory information and, in order to cope with all of this incoming information, people disregard most of it and selectively allocate their attention to what is deemed self-relevant (Bernstein, 1969; Gray, Ambady, Lowenthal, & Deldin, 2004). People are especially likely to pay attention to events that are self-relevant, yet unexplained or poorly understood. For example, a graduate student who unexpectedly aces her comprehensive exams will initially think about little else.

Second, in addition to grabbing our attention, unexplained self-relevant events trigger strong emotional reactions. The graduate student who unexpectedly aces her comprehensive
exams will initially feel joyful, if not euphoric. Indeed, the more discrepant an event is from a person’s existing beliefs and/or knowledge structures, the more intense their emotional reaction is likely to be (Ortony, Clore, & Collins, 1988).

Third, after people have their initial emotional reaction to an unexpected event, they quickly and automatically begin to search for reasons to explain it or make sense of it. The euphoric graduate student will start developing possible explanations for why she received the better-than-expected grades (e.g. “I guess I really do know this stuff!” or “Gee, am I glad I wore my lucky underwear?!”). People attempt to make sense of such events not only by determining their causes, but also by attempting to understand the significance of such events in regard to their goals and self-concept (Scherer, 2001).

The idea that people skillfully explain their environment and thus transform their world into a predictable place is not new. Piaget’s developmental theory (Piaget, 1952; Piaget & Inhelder, 1969) suggests that novel events are assimilated into a child’s existing knowledge structure; otherwise their knowledge structures are modified to accommodate information gained from the novel event. In addition, attribution theorists (Gilbert, 1991; Heider, 1958; Kelley, 1967) suggest that people are adept at explaining their social world, rapidly making attributions about the causes of other people’s behavior as well as their own. Heider (1958) argued that this allows people to better understand their world and provides them with a sense of being able to predict and control future social events.

Indeed, people who do not feel as though they can predict and control their environments are at risk for major cognitive and/or motivational deficits, including depression and anxiety (Abramson, Seligman, & Teasdale, 1978; Langer & Rodin, 1976; Schulz, 1976; Seligman, 1975; Taylor & Brown, 1988; Thompson, Armstrong & Thomas, 1998). Thus, the automatic process of
attempting to determine the meaning behind and the importance of self-relevant, yet poorly understood events, is beneficial in helping the individual develop a coherent and predictable view of the world.

Fourth, successfully explaining or making sense of an event leads to affective adaptation. The event no longer seems surprising, but rather ordinary and reasonable in light of the person’s new understanding. Thus, the person adapts to the event and their affective response to it fades. They do not think about the event as much and their emotional reaction is less intense when they do think about it. Once the graduate student has made sense of her better-than-expected grades, she will not think about her achievement as often and will experience less joy when she does. She will come to view acing her comprehensive exams as more ordinary and inevitable than it actually was. Thus, the event will have less emotional power than it did when it seemed extraordinary.

Indeed, people automatically engage in psychological processes in order to make sense of their experiences, thus attenuating their emotional responses to both positive and negative events. However, when it comes to negative emotional events, people are more highly motivated to make sense of the experience in order to alleviate psychological suffering (Gilbert, Lieberman, Morewedge, & Wilson, 2004). Thus, the impact bias is often more pronounced for negative events than it is for positive events because people remain unaware of the unconscious psychological efforts designed to help them recover.

Psychological Immune System

People have an amazing talent for artfully transforming their views of negative outcomes so they are experienced more positively (Wilson & Gilbert, 2008). They distort ambiguous
information in order to create interpersonal environments that allow them to feel satisfied with themselves and their situations (Taylor & Brown, 1988). Previous investigators have studied this notion and have developed a variety of related theoretical constructs – defense mechanisms (A. Freud, 1937; S. Freud, 1924/1968), adaptive mental mechanisms (Vaillant, 2000), self-esteem maintenance mechanisms (Tesser, 2000), dissonance reduction (Festinger, 1957), self-affirmation (Steele, 1988), motivated reasoning (Kunda, 1990) and positive illusions (Taylor, 1989) – to name just a few. Although there are notable differences among these theoretical constructs, they all share the fundamental notion that people perform skillful psychological work, subjectively optimizing less-than-optimal information in order to alleviate and curtail negative emotion.

This collection of defenses, that protects us from negative emotional experiences, is so powerful and pervasive that it can be considered as a psychological immune system (Gilbert et al., 1998; Gilbert & Wilson, 2000; Vaillant, 1993). Just as a person’s physiological immune system defends against threats to their physical well-being, their psychological immune system defends against threats to their emotional well-being. The psychological immune system basically turbo-charges the sense-making process, providing extra force in the effort to detect and neutralize threats to emotional well-being.

Immune Neglect

Although people are well aware of their physiological immune system and anticipate a relatively quick recovery from a cold ("I’m sure I’ll be fine in a few days"), they are surprisingly unaware of the psychological immune system and seldom anticipate how resiliently they will recover from negative emotional events, such a romantic break-up ("I don’t feel like I’m ever
going to recover from this”). The failure to account for the operation of the psychological immune system when making affective forecasts, which gives rise to the impact bias, is termed immune neglect (Gilbert et al., 1998). When making affective forecasts, people overestimate the intensity and duration of negative emotional experiences, in part, because they are unaware of the cognitive forces that will ameliorate them.

Gilbert et al. (1998) demonstrated this phenomenon in several studies, by manipulating the ease with which participants could make sense of a negative event. Logically, impeding the psychological immune system by making it difficult to explain – or make sense of – an event should impede emotional recovery from that event. Thus, these researchers predicted that participants would recover faster from events that were easier to make sense of. However, because of immune neglect, they also predicted that participants would not anticipate this when making their predictions.

In one of the studies by Gilbert et al. (1998), university students were interviewed for a desirable job – getting paid to sample and test consumer products – and were subsequently rejected. Half of the participants answered questions of little relevance to the job and were told the hiring decision would be made by 1 person (unfair decision condition). The other half answered questions highly relevant to the job and were told the hiring decision would be made by 3 individuals (fair decision condition). In addition, participants in the fair decision condition were told the only way they would not get the job is if all 3 individuals rejected them. Presumably it would be much easier to rationalize the rejection if the decision was made by 1 person who did not have relevant information about the participant’s suitability for the job. On the other hand, it would be much more difficult to rationalize being rejected by 3 people who all had evidence of the participant’s suitability for the job.
After the interview, participants, in both conditions, predicted how unhappy they expected to be if they were to be rejected, both immediately after receiving the news and 10 minutes after being rejected. Later, after being informed that they had, in fact, been denied the position, participants immediately rated their actual level of happiness and then did so again 10 minutes later. Both groups predicted they would be unhappy, to an equal degree, immediately after being rejected, as well as 10 minutes later.

Immediately following the rejection, participants in both conditions were similarly unhappy, as they correctly predicted. However, 10 minutes later, participants in the unfair decision condition were significantly happier than those in the fair decision condition. Apparently, the psychological immune systems of the participants in the unfair condition had a much easier time making-sense of the negative outcome (“That guy is a moron, who barely knows anything about me”) while participants in the fair condition had a tougher time rationalizing the triple rejection (“What? How could all three of them fail to see how great I am?”). However, because of immune neglect, participants did not take this into account when predicting their emotional states 10 minutes after being rejected and thus failed to anticipate any difference between the fair and unfair conditions.

In another study by Gilbert et al. (1998), participants received somewhat negative personality feedback from either an “experimental computer program” or from “a group of experienced clinicians.” Prior to taking part in the personality evaluation, participants in both groups were asked to predict how they would feel a few minutes afterward the evaluation, if they were to receive negative personality feedback. Participants in both groups predicted that they would feel equally unhappy. However, results revealed that the participants who received the negative personality feedback from the computer program felt significantly happier than those
who received the same feedback from the group of clinicians. Of course, it is a lot easier to make sense of negative personality feedback received from a computer (“Whatever, something’s wrong the circuit boards”) than it is to make sense of negative personality feedback received from experienced clinicians (“What?! Lots of people think I’m totally cool. How are these results possible?”). However, because people are unaware of the powerful workings of the psychological immune system, they do not anticipate the ease (or lack thereof) with which they will make sense of a negative emotional event.

*Implications of Immune Neglect*

Immune neglect has several important consequences, including the illusion of external agency (Gilbert, Brown, Pinel, & Wilson, 2000), a misguided preference for changeable outcomes (Gilbert & Ebert, 2002) and the tendency to misjudge the relative impact of major and minor traumas (Gilbert et al., 2004).

Illusion of External Agency

Immune neglect bears influence on our deepest beliefs about the origins of our experiences. Because people are typically unaware that their psychological immune system even exists, they obviously do not credit this immune system for their speedy recoveries from undesirable outcomes. Instead, they are likely to attribute their unexpected resilience to the intervention of a benevolent external agent.

For example, a man who receives a job transfer to an undesirable location may be pleasantly surprised by how much he enjoys the location once he is living there. However, he will most likely fail to recognize that his unexpected happiness was self-generated through the
non-conscious workings of his psychological immune system, and instead attribute his seeming
good fortune to the guiding hand of a benevolent external agent, such as God.

In a somewhat complex study, Gilbert et al. (2000) demonstrated how immune neglect
can lead to the illusion of external agency. After performing an initial visual detection task on a
computer, participants were told they would be taking part in a “self-disclosure exercise” with a
partner. Before each participant’s partner was selected, participants read the autobiographies of 4
potential partners. Half of the participants rated how much they liked each of their potential
partners (committed group) and half did not rate their preferences (uncommitted group). The
autobiographies were then placed in unidentifiable folders and participants randomly selected
one, ostensibly to determine who their partner would be. Unknowingly to the participants, the
researcher ensured that each participant picked an unfavorable partner.

At this point in the study, the researcher informed participants that the study was over and
stated that it was actually a study about the effectiveness of subliminal messages. The researcher
then confessed (falsely) that during the initial visual detection task, they had been exposed to
subliminal primes designed to increase the probability that they would pick the best partner for
them. Participants were then asked to rate how much they liked the partner they had selected, as
well as the extent to which they believed the subliminal prime had influenced their choice.

As expected, the uncommitted participants liked their partners more than did committed
participants. Presumably, it was easier for the uncommitted participants to generate satisfaction
with their chosen (unfavorable) partners because they had not previously denounced them
publicly. Also, as expected, the uncommitted participants were more likely to believe that the
subliminal primes had influenced their choice of partner. Apparently, these participants failed to
realize that their satisfaction with their chosen partners was self-generated (i.e. they neglected
their psychological immune system) and thus, they attributed their good fortune to an external agent (the subliminal primes).

People neglect the internal dynamics that promote positive emotional change and, instead, look outward for an explanation, thus giving rise to what Gilbert et al. (2000) call an illusion of external agency. Most people throughout the world believe in the existence of a divine being and nearly all Americans profess a belief in God. Eighty-three percent of Americans report that God has guided them in making an important decision, 81% have reportedly felt God’s presence, and 74% report that God has a specific plan for their lives (Gallup & Castelli, 1989; Gallup & Jones, 1989). Belief in an omniscient and omnipotent divine being has deep cultural and historical roots. However, this phenomenon may also have psychological roots.

Gilbert et al. (2000) have suggested that people’s beliefs about God may be partly explained by people’s neglect of the psychological immune system. Of course, Gilbert et al. do not deny the existence of God. Rather they suggest that neglect of the sense-making processes of the psychological immune system may contribute to belief in the ability of external agents (including some conceptualizations of God, as well as, subliminal messages, etc.) to take part in engineering our experiences.

Misguided Preference for Changeable Outcomes

Americans are committed to the ideals associated with free-will and self-determination. People want to make up their minds for themselves, and they want the freedom to change their minds if they so choose. However, it has been argued that the American obsession with the freedom to choose and the excessive amount of choices available in America today has led people to feel less satisfied with their lives (Schwartz, 2000; 2004).
The desire for freedom to choose from an abundance of options leads people to avoid making binding commitments and/or permanent decisions. Indeed, people prefer options that allow them to change their mind, even though such options actually inhibit the sense-making processes of the psychological immune system which helps to generate satisfaction when a definite choice is made (Gilbert & Ebert, 2002). Binding commitments and/or permanent decisions lead to an increase in satisfaction because, once a commitment is made, people engage in the psychological work necessary to subjectively optimize that which can not be changed. However, people often do not take this into account when making decisions. Thus, another consequence of immune neglect is that people may take actions that inadvertently diminish the possibility of maximizing their overall happiness because of their somewhat misguided preference for the opportunity to change their minds (i.e., their preference for changeable outcomes; Gilbert & Ebert, 2002).

People first make efforts to change things they would rather not accept and then make efforts to accept things that they can not change (Gilbert, 2006). When people experience suboptimal outcomes, they first attempt to increase their satisfaction by changing the outcome. This is why people return undesirable birthday gifts, walk out of bad movies, and send back overcooked steaks. However, when people can not change an outcome, they attempt to increase satisfaction by changing their perception of the outcome. This is why people forgive their siblings for behavior they would never tolerate in a friend and why employers may overlook chronic tardiness in an employee but refuse to hire an applicant who shows up 5 minutes late.

It is only when there is no expectation of change that the psychological immune system works to subjectively optimize a person’s outcome or experience. For example, if conversation with a blind date turns out to be boring, people generally change their behavior (“There’s no way
I’m going on another date with that guy”), but if conversation with a person’s spouse proves to be uninteresting, people generally change their attitudes (“I know he is sometimes dull, but he is such a kind and wonderful man”). Friends may come and go, but we are generally stuck with our siblings and spouses, for better or worse.

Because unchangeability triggers the psychological immune system, leading to the self-generation of satisfaction, it would be reasonable for people to value this feature and even seek it out. However, precisely the opposite seems to be true. People tend to react with disappointment and anger when they perceive a threat to their decisional freedom (Brehm, 1996). In fact, people will often pay extra in order to have the option of revoking a decision. For instance, Wood (2001) found that people were willing to pay more in order to purchase items from stores with lenient return policies. Lease-to-own contracts, adjustable rate mortgages, and prenuptial agreements are just a few more examples in which people pay premiums today to have the option of changing their minds tomorrow (Gilbert, 2006).

Of course, the preference for changeability is not always a bad thing and it is sometimes advantageous to try out something before making a binding commitment to it. If one were forced to make a major decision without knowing much about the options beforehand, having the opportunity to change the decision after more information is available might actually enhance one’s overall satisfaction (Gilbert, 2006). Furthermore, changeability can be a source of utility in and of itself (Lovallo & Kahneman, 2000), and the gratification people derive from merely knowing they can change their decision may sometimes compensate for its detrimental consequences. However, the potential benefits of changeability come at a cost.

Retaining the possibility of changing an outcome prevents the subjective optimization of that outcome (Gilbert & Ebert, 2002). Research has demonstrated that making a commitment
leads to increased satisfaction with that which is chosen. Job applicants considered jobs to be more attractive after accepting them (Lawler, Kuleck, Rhode, & Sorensen, 1975), and high school seniors evaluated colleges as more desirable after accepting an offer of admission from them (Lyubomirsky & Ross, 1999). Racetrack gamblers expressed greater confidence in their horses after placing a bet on them (Knox & Inkster, 1968), and voters rated the overall quality of their candidates higher after they officially voted for them (Frenkel & Doob, 1976). Also, female participants in a university research study evaluated kitchen appliances more positively after choosing one as a gift for their participation (Brehm, 1956).

In two separate studies, Gilbert and Ebert (2002) demonstrated that people experience more satisfaction with outcomes they can not change than with outcomes they can change. These studies also demonstrated that people do not anticipate this difference and thus, prefer to make decisions that are changeable, which ultimately prove less satisfying.

The first study by Gilbert and Ebert (2002) involved college students enrolled in an extracurricular photography class. Over the course of a few days, the students took a dozen photographs of people and places that were meaningful to them. Each student then received a 90-minute private lesson, during which the instructor helped them develop prints of their 2 favorite photographs. Each student was asked to pick 1 of the photographs to keep for themselves and to relinquish the other to the instructor to be kept on file. Before making their decision, half of the students were told their choice was final and the other half were told they would have several days to contemplate their choice and exchange the photograph if so desired. Students’ satisfaction with their chosen photograph was measured over several days and, as it turned out, those who were allowed to exchange it were less pleased with their selection than those whose selections were final.
Furthermore, before making their selection, some of the students from each condition were asked to predict how much they would like their chosen photograph if they were or were not given the opportunity to exchange it. These students predicted that the option to change their mind (or lack thereof) would not have any influence on their satisfaction with their chosen photograph. Interestingly, however, when a different group of students were given descriptions of the photography class, both with and without the option of exchanging the photograph, the vast majority preferred to take the class that would provide the opportunity for them to make an exchange. That is, they made the decision to enroll in the photography course in which they would ultimately be less satisfied with the photograph they produced and selected.

In the second study, Gilbert and Ebert (2002) asked participants to rate their liking for 9 posters of fine art reproductions and then offered to give them 1 of the posters as a gift. Participants were given a choice between the posters they had ranked third-highest and fourth-highest. After making their choice, half of the participants (changeable condition) were told they could exchange their chosen poster for the other one anytime during the next month. The other half of participants (unchangeable condition) were told their choice was final and that no exchanges would be allowed. This was a procedural change from the first study, in which participants were informed about the changeability of their decision before making their choice, and eliminated the possibility that participants made choices differently based on whether their decision would be changeable or unchangeable.

After all participants made their choice, they were then asked to spend 15 minutes writing an essay describing the poster they chose. Half of the participants from both the changeable and unchangeable conditions ("forecasters") were asked to predict how much they would like their chosen poster after 15 minutes, once they finished writing the essay. The other half of
participants from both conditions ("experiencers") were not asked to make predictions before writing the essay. After all participants made their choice, they spent 15 minutes writing the essay and then rated their actual liking for their chosen poster.

Fifteen minutes after making their choices, experiencers in the unchangeable condition reported liking their poster of choice more than experiencers in the changeable condition did. That is, participants were more satisfied with their poster when they did not have the opportunity to exchange it than when they did. However, forecasters did not anticipate this effect. The forecasters – who apparently did not consider the workings of the psychological immune system – predicted they would be just as satisfied with their choice of poster, regardless of whether or not they could exchange it.

In the final part of the study, a new group of participants ("choosers") were given a brief description of the study and were then asked which condition (changeable or unchangeable) they would prefer to be assigned to. The choosers had a strong preference for the changeable condition. That is, they preferred to be in the condition in which they would ultimately be less satisfied with their decision.

In both studies by Gilbert and Ebert (2002), the majority of participants chose the changeable condition, although this was the condition that ultimately led to less satisfaction with one’s decision. Presumably, having the option to change their minds impaired the post-decisional sense-making processes of the psychological immune system. However, this was not taken into account when participants made affective forecasts or made decisions based on them. These results further demonstrate that immune neglect can lead people to behave (e.g., make decisions) in ways that do not optimize their overall happiness and emotional well-being.
In summary, these studies suggest that people are quite skilled at altering their perceptions in order to develop a more positive view of things that become their own. Apparently, outcomes are a lot better when they are owned than when they are optional. However, people commonly neglect the sense-making processes of the psychological immune system and make decisions as though their future satisfaction were based entirely on the intrinsic, immutable properties of the potential outcomes, failing to take into account their amazing talent for transforming their view of things (Gilbert & Ebert, 2002).

Misjudgments about the Relative Impact of Trauma Severity

Immune neglect also leads to misjudgments about the relative impact of trauma severity (e.g., the emotional impact of minor traumas vs. major traumas). People believe that more severe traumas will have more enduring negative emotional impact than less severe traumas will (Gilbert et al., 2004). However, the more severe a trauma is, the more motivated a person is to make sense of it, and sense-making leads to affective adaptation (Wilson & Gilbert, 2008).

Minor traumas are often neglected after a brief moment, whereas major traumas activate the psychological immune system, which immediately begins working intensively to heal emotional wounds. Intense emotional experiences trigger psychological processes designed to attenuate them. Thus, the distress from a smaller trauma may paradoxically endure longer than the distress from a major trauma. However, because people are unaware of the psychological immune system, they may mistakenly expect intense states to last longer than mild ones (Gilbert et al., 2004).

Peoples’ reactions to physical injuries provide an illustrative analogy. People generally expect the severity of a physical injury to determine the length of time it takes to recover from it.
However, the more severe an injury is, the more likely a person is to take active steps to hasten their recovery. Thus, in some cases, a person may paradoxically recover faster from a more severe injury than from a minor one.

For example, if a person were to sustain a minor cut that caused little pain, they probably would not put much energy into trying to heal the wound. More than likely, they would stop long enough to throw on a Band-Aid and then return to business as usual. However, if a person were to sustain a major laceration that caused a great deal of pain, you can bet they are going to put a lot more effort into trying to heal the wound. They are likely to take a trip to the emergency room in order to have the wound professionally cleaned, stitched up, and bandaged, followed by a trip to the pharmacy to have a prescription for pain medication filled before returning home to rest. On the other hand, the person with only a minor cut, who has with little concern about the wound, may inadvertently continue to agitate it and consequently prolong the process of healing or recovery.

Consider another illustration. Pretend you were to ask a homeowner in Texas the following question, “Would you rather have one of your faucets start leaking or have your air conditioner completely conk out in the middle of summer?” The homeowner would probably respond by saying something like, “What an absurd question! Of course, the broken air conditioner would be much worse!” And they would be right. The broken air conditioner would be worse – at first. However, if the goal is to accumulate maximum happiness over time, then the homeowner would have just made the wrong choice. Such a question is not so absurd, when we take into account people’s degree of motivation to fix (or recover from) problems of varying severity.

When the air conditioner conks out in the middle of a hot Texas summer, homeowners
call out a repair worker immediately and do whatever it takes to get the problem fixed as soon as possible. Homeowners would be much less motivated to fix minor problems. Thus, leaky faucets or loose hinges may end up annoying homeowners for months or years, because they never put forth the active effort to repair them. Ironically, the net amount of negative affect related to a minor problem may surpass the amount of negative affect related to a major problem.

The same paradox applies to psychological traumas. For instance, a spouse may put forth the cognitive effort necessary to forgive their partner for some egregious transgression (e.g. adultery, instance of abuse), whereas he or she continues to experience minor irritation on a regular basis due to their partner’s annoying habits, such as leaving dirty towels on the bathroom floor or dirty dishes in the sink (Finkel, Rusbult, Kumashiro, & Hannon, 2002). As discussed previously, the psychological immune system is triggered on some occasions (i.e., binding commitments, irreversible decisions) and not on others (Gilbert & Ebert, 2002). The severity of a trauma is another one of those triggers (Gilbert et al, 2004). The psychological processes that work to attenuate distress also appear to have cognitive costs (Richards & Gross, 2000; Wegner, Erber, & Zanakos, 1993), and in order to conserve costs they tend to be triggered only when distress meets or surpasses a critical threshold. The paradoxical consequence of this is that people sometimes recover faster from truly distressing experiences than from only slightly distressing experiences (Aronson & Mills, 1959; Gerard & Mathewson, 1966; Zimbardo, 1966).

For example, in one study, college students were invited to join an extracurricular club with an initiation ritual that required them to receive 3 electric shocks (Gerard & Mathewson, 1966). Some of the students received shocks that were quite severe (severe-initiation group) and others received shocks that were relatively mild (mild-initiation group). The students who
received the more severe shocks actually reported liking the club more than did the students who received the mild shocks.

Presumably, the intense shocks were distressing enough to trigger the students’ psychological defense systems, whereas the mild shocks were not (Gilbert et al, 2004). The psychological defense systems then immediately engaged efforts to help the students develop a positive and credible explanation of their experience. Hence, the students valued the club more when the initiation was more painful. In fact, research has shown that when people are given electric shocks, they report feeling less pain when they believe the suffering is for something of great value (Zimbardo, 1966). Major suffering triggers cognitive processes to aid affective adaptation (i.e., the sense-making process) in order to ameliorate distress, whereas mild suffering does not (Gilbert et al., 2004; Wilson & Gilbert, 2008).

To be effective as a defensive system, the psychological immune system must respond to threats on one’s emotional well-being (Gilbert, 2006). However, to be practical, it can not respond to all potential threats but rather only to those that meet or exceed a critical threshold. This means that minor threats to our emotional well-being can sometimes easily sneak through and get to us. When something happens to make us feel sufficiently unhappy, our psychological immune system will do what it needs to (e.g. shift blame, distort facts) in order to make us feel better. However, such effort is not put forth when we become only slightly frustrated, jealous, or sad.

Getting fired and getting divorced are the kind of major assaults on one’s emotional well-being that set off one’s psychological defenses, whereas being placed on hold during a phone conversation, or having to pick up after someone else, are not. Being put on hold while talking to
someone on the phone may be annoying, but it generally does not pose a serious threat to one’s psychological well-being or trigger a person’s psychological immune system.

The psychological immune system is a complex system that operates outside of conscious awareness and has dynamics that are sometimes counterintuitive, making it difficult for people to accurately predict their future emotions (Gilbert et al., 2004). If people do not realize that the psychological immune system is triggered only when the severity of distress meets or exceeds a critical threshold, they are likely to mistakenly predict that the duration of distress is directly proportionate to the initial intensity of the distress. Furthermore, mispredicting the duration of distress related to psychological traumas of different severities can lead people to mispredict the overall magnitude of distress experienced as a result of these different traumas.

Gilbert et al. (2004) demonstrated this paradoxical phenomenon is a series of 3 studies. In the first study, participants were asked to imagine a number of different negative experiences, including being turned down for a date, not being recognized by someone they just recently met, having their roommate borrow their shoes without permission, catching someone trying to break into their locker, and finding out about a romantic encounter between their best friend and their former girlfriend (or boyfriend). For each experience, participants estimated the intensity of their initial emotional reactions, by rating how much they would dislike the transgressor at the moment the event happened. Participants also estimated the duration of emotional reactions, by rating how much they would dislike the transgressor 1 week later.

Results showed a significant correlation between the participants’ predictions of initial intensity and their predictions of duration. That is, for all of the negative events considered, participants predicted that the duration of their distress would be directly proportionate to the initial intensity of their distress. However, in 2 additional studies, Gilbert et al. (2004)
demonstrated that participants recovered faster from more initially intense psychological traumas than from less initially intense psychological traumas.

In their second study, Gilbert et al. (2004) arranged for participants to receive negative personality feedback from another person. The feedback was detailed and mildly negative, including statements such as, "You have few qualities that distinguish you from others" and "People like you primarily because you don’t threaten their competence." Some of the participants expected to meet and later interact with the person who provided the negative feedback. Other participants believed they would never meet the person. Before the experiment began, participants completed a baseline measure of their affective state. The same measure was completed at the time the negative feedback was received. Not surprisingly, participants were more distressed when the feedback was from a person they expected to meet.

Surely it would be more upsetting to be insulted by someone we expect to meet and interact with than to be insulted by an anonymous stranger who we will never meet. Indeed, just the anticipation of pairing with another person, even in cases of accidental collaboration on a minor task, is enough for people to feel a social bond and desire a harmonious interaction with the other person (Darley & Berscheid, 1967). Thus, when another group of participants (forecasters) were asked to predict how they would feel 5 minutes after receiving the negative feedback, they reasonably predicted they would feel worse if the feedback was from a person they expected to meet and interact with the person.

As reasonable as these forecasts were, they were wrong. Results indicated that participants who actually received the feedback (experiencers) felt significantly better, 5 minutes afterwards, when the negative feedback came from a person they expected to meet and interact with. Presumably, the distress associated with being insulted by a person with whom we expect
to interact is severe enough to trigger the psychological immune system, whereas the distress associated with being insulted by someone considered to be an insignificant stranger is not.

In a third study, Gilbert et al. (2004) demonstrated that victims of an insult (participants receiving negative personality feedback) ultimately felt better than bystanders, who simply witnessed the insult directed at the victim. Participants, who actually received the negative feedback from someone they expected to meet, expressed less dislike for the person 5 minutes later, than did participants to which the incident was described.

Supposedly, the bystanders were only mildly upset (“Geez, what a rude thing to do to someone!”), and their distress did not meet the critical threshold necessary to activate their psychological immune system. Whereas the victims, who were initially more upset than the bystanders (“What? How could they think I’m such a loser?”), immediately engaged in active efforts to rationalize the situation and relieve their distress (“They really don’t know me and are probably just in a bad mood.”). However, an additional group of participants (forecasters) predicted they would be more upset, 5 minutes afterwards, if they were the victims rather than the bystanders.

Contrary to their own predictions, participants in these studies disliked least the people who hurt them the most. Such paradoxical findings are related to the fact that intense affective states automatically trigger psychological processes designed to ameliorate them. Evidently, though, people are unaware of these innate psychological defenses, leading to the mistaken expectation that more intense emotional experiences will last longer than those that are less intense.

The results of these studies, as well as others (e.g., Gilbert & Ebert, 2002), suggest that when people make decisions, without accounting for the processes of affective adaptation, they
may fail to maximize their overall satisfaction. Furthermore, errors of prediction are likely to lead to errors of action.

For instance, a professor might be informed that he or she must either move into a smaller research room or allow a small space in his or her current research room to be used for textbook storage. The professor is likely to be correct in his belief that the inconvenience associated with giving up a small space in his current research room for textbook storage would be a lot less distressing than the major inconvenience of moving everything in the research room into smaller quarters. However, the professor may fail to realize that the distress associated with moving is likely to be intense enough to trigger the psychological immune system ("I know this research room is a little bit smaller, but it is all mine and it is really nice being right next to the computer lab"), whereas the distress associated with having a bunch of textbooks piled in one corner of the room may fail to set off the trigger and thus continually lead to frustration ("I’m so annoyed every time I am interrupted so that someone can grab a textbook"). Ultimately, the professor may decide in favor of the option that is initially less distressful but is overall less satisfying.

Misjudgments about the relative impact of trauma severity, due to immune neglect, can take the many forms that lead to the same sort of paradoxical outcomes (Gilbert et al., 2004). For example, drivers may believe the amount of time they spend on the road is directly proportionate to their risk of being in a car collision. Thus, a long road trip may be perceived as threatening enough to trigger precautionary behaviors (e.g. wearing seatbelts); whereas a short trip does not. If drivers decide to buckle for trips across state lines but neglect to wear seatbelts when making quick trips to the convenience store, people may paradoxically be more likely to be injured in a car accident when they are taking short rather than long trips.
Similarly, partygoers may believe their blood alcohol levels are directly proportionate to their risk of causing a car accident on the way home or their risk of being arrested for drunk driving. If a partygoer who becomes highly inebriated triggers preventative measures (e.g. hiding car keys, calling a cab), but partygoers who are only tipsy are overlooked, people may paradoxically be more likely to cause an accident and/or be arrested after drinking two glasses of merlot than after drinking a fifth of scotch. These examples demonstrate how common this paradox is in everyday life and provide illustrations of the potential consequences of neglecting the complex workings of the psychological immune system.

**Efforts to Improve Affective Forecasting**

Considering the pitfalls of affective forecasting errors, the next logical step is to develop methods for improving the accuracy of affective forecasts. Initial attempts to improve affective forecasting have concentrated on reducing the 2 major causes of the impact bias, focalism and immune neglect, by utilizing a variety of defocusing tasks and/or adaptation exercises (Ayton, Pott, & Elwakili, 2007; Damschroder, Zikmund-Fisher, & Ubel, 2005; Dunn et al., 2003; Ubel et al., 2001; Ubel, Loewenstein, and Jepson, 2005; Walsh and Ayton, 2009b; Wilson et al., 2000). These studies have produced mixed results but suggest that the effectiveness of defocusing tasks may be somewhat limited, whereas adaptation exercises may be more widely applicable.

**Defocusing Tasks**

Some of the initial attempts to improve affective forecasting have concentrated on reducing focalism. Focalism is the first major proposed cause of the impact bias, which occurs when people focus on the emotional impact of one specific event (or aspect of an event) and
disregard other events that will also influence their affective states (Wilson et al., 2000). As discussed previously, a couple of studies have demonstrated that focalism can be reduced by having people carefully consider the other events that will also influence their emotional experience (Dunn et al., 2003; Wilson et al., 2000).

Prior to forecasting the emotional impact of their team winning or losing an important game, Wilson et al. (2000) had football fans complete a "prospective itinerary" of how they would spend their time in the days following a football game. This improved the predictions of how happy (or unhappy) the football fans would be during the days that followed the big game. Similarly, prior to forecasting their affective response to being assigned to desirable or undesirable dormitories, Dunn et al. (2003) asked undergraduates to carefully consider the shared feature of dorms (i.e., social life), as well as aspects that would be different (i.e. physical characteristics of the dorm). This exercise also improved affective forecasts. The success of these studies suggests that defocusing is a viable tool for improving affective forecasts. However, other studies have provided very limited evidence of this.

Ubel et al. (2001) asked participants (non-patients) to rate the quality of life (QoL) associated with having one of two chronic health conditions: paraplegia or below the knee amputation (BKA). Researchers then attempted to defocus participants by having them think about how the disability would impact a wide range of life domains (e.g., family life, love life, spiritual life, and leisure activities). Participants then rated the QoL associated with having the disability for a second time. Contrary to the hypothesis, the defocusing task did not cause participants to look more favorably (or at least less unfavorably) on a life with disability. Instead, participants lowered their QoL estimates, indicating that the defocusing task made affective forecasts less accurate.
In a follow-up study, Ubel et al. (2001) asked another group of participants to rate the QoL associated with having either paraplegia or partial blindness. This time researchers used a slightly different defocusing task, in which participants were asked to create their own list of important life domains and then consider how each would be impacted by the disability. Although the defocusing task did not significantly affect the QoL ratings associated with paraplegia (in either direction), it did significantly increase the QoL ratings associated with partial blindness. Attempting to explain their discrepant findings, Ubel et al. reasoned that the defocusing techniques used were ineffective because they drew attention to life domains that were too broad or ill-defined. These techniques were intended to get participants to appreciate aspects of life that would be unaffected (or even enhanced) by the disability, but they may have inadvertently prompted participants to more clearly envision the detrimental effects.

In a later study, Ubel, Loewenstein, and Jepson (2005) examined how 3 different defocusing tasks influenced participants’ predicted quality of life if they had either paraplegia or below-the-knee amputation (BKA). These tasks were designed to defocus participants by getting them to consider the many routine activities and mundane aspects of life on which the disability would have little or no impact. Before and after engaging in 1 of the 3 defocusing exercises, participants predicted what their overall quality of life (QoL) would be living with one of these disabilities, on a scale ranging from 0 (as bad as death) to 100 (as good as perfect health).

The first defocusing task (concrete events design) required participants to think about how the disability would be influenced by several common concrete life events, such as having a conversation with a good friend, watching television, or getting stuck in traffic. The second defocusing task (time-weighted daily events design) required participants to think about concrete events in proportion to the time they spend experiencing these events. Participants were asked to
consider the main activities that would fill up a typical day, if they were living with the disability. This defocusing task is similar to the one used by Wilson et al. (2000) to defocus football fans. The third defocusing task (change for better or worse design) required participants to think about aspects of life that would be changed for the worse, be changed for the better, and would not change due to having the disability. Unlike the previously described defocusing tasks, this one explicitly instructed the participant to defocus – that is, consider things that would not be affected by the disability. However, results showed that QoL predictions (for living with either paraplegia or BKA) were not increased by any of the 3 defocusing exercises.

The lack of support for defocusing exercises as a way to improve affective forecasting in the Ubel, Loewenstein, and Jepson (2005) study is consistent with findings from a more recent study by Walsh and Ayton (2009b). These investigators compared the actual happiness ratings of people living with a chronic health condition (diabetes, epilepsy, or kidney disease) to the affective forecasts of non-patient participants. This allowed the accuracy of predictions to be measured directly. As expected, participants significantly overestimated the negative impact of these health conditions on one’s happiness, demonstrating an impact bias. Participants then engaged in one of two defocusing tasks: one was a variation on the itinerary method used by Wilson et al. (2000), and the other was based on the life domain method (Ubel et al., 2001; Ubel, Loewenstein, & Jepson, 2005). However, as with the Ubel, Loewenstein, and Jepson (2005) study, no defocusing effect was observed.

Nevertheless, a study by Ayton et al. (2007) did provide evidence that 1 type of defocusing task increased the predicted happiness of a person diagnosed HIV positive. Ayton et al. examined the impact of 2 defocusing tasks on the predicted happiness of a hypothetical person who either won the lottery or was diagnosed HIV positive. Participants were provided
with a brief description of a hypothetical person: “Greg” who was diagnosed with HIV or “Angela” who had won a large sum playing the lottery. All participants then predicted the happiness level of the person at 3 points in time following the life event: 5 weeks, 6 months, 1 year.

Prior to making affective forecasts, participants were randomly assigned to be in either a control group or 1 of 2 defocusing groups. The control group did not engage in either defocusing task. The defocusing groups engaged in one of two defocusing tasks (general or specific). Participants in the general defocusing group rated how much their enjoyment of many everyday activities (e.g., eating lunch, reading a good book, going to the movies, talking with a friend, buying clothes) would be affected by the life-event described. This defocusing exercise was similar to one used by Ubel et al. (2001). Participants in the specific defocusing group listened to a recorded description lasting approximately 10 minutes, depicting a day in the life of the person described, 5 weeks after experiencing the life event (HIV diagnosis or lottery win). This description was designed to provide participants with a specific construal of what life would be like, particularly in the context of a typical day. The description contained references to seemingly mundane and trivial activities that usually occupy people during the day (e.g., looking for keys, picking up dry cleaning, having lunch, talking with colleagues). There were no references to the individual’s wealth or health. The description was intended to help participants realize that many other daily life events would also affect their level of happiness.

The specific defocusing task significantly reduced the extremeness of affective forecasts for both life events. Those predicting the impact of an HIV diagnosis forecasted higher levels of happiness than did the control group and those predicting the impact of winning the lottery forecasted lower levels of happiness than did the control group. Thus, the specific defocusing
task effectively moderated affective forecasts, rendering them less extreme. However, the
general defocusing task did not have an effect. Both findings were consistent across forecasts
made at the 3 different time points (5 weeks, 6 months, and 1 year).

It is not absolutely clear why defocusing interventions produced results in some of these
studies and not in others. Ayton et al. (2007) concluded that the lack of efficacy (i.e., specificity)
of the defocusing tasks may have caused the negative results of the studies by Ubel et al. (2001).
That is, participants may not have sufficiently engaged with the method for it to successfully
improve their predictions. However, even studies that did use more specific defocusing tasks
failed to find an effect for people considering the impact of chronic health conditions (Ubel,
Loewenstein, & Jepson, 2005; Walsh & Ayton, 2009b). These studies used several different
defocusing tasks, all requiring participants to consider several specific everyday activities that
would not be impacted by the health condition, which failed to improve affective forecasts of
participants considering paraplegia, BKA, diabetes, epilepsy, and kidney disease.

It appears that, to whatever extent the general public overestimates the negative impact of
chronic health conditions on quality of life, it is not very likely that efforts to reduce focalism
will improve their affective forecasts. This raises the question of whether the other major cause
of the impact bias – failure to account for affective adaptation – might be a better option for
trying to improve affective forecasting related to having a chronic health condition.

Adaptation Exercises

Other attempts to improve affective forecasting have concentrated on reducing immune
neglect. Immune neglect is the second major proposed cause of the impact bias (Gilbert et al.,
1998). Immune neglect occurs because people fail to account for the sense-making processes of
the psychological immune system which lead to affective adaptation (Wilson & Gilbert, 2008). Studies have shown that affective forecasts can be improved by having people engage in adaptation exercises (Damschroder et al., 2005; Ubel, Loewenstein, & Jepson, 2005). These exercises are designed to get people to consider how they have adapted to a negative experience in the past and/or consider how they will adapt to a future negative event.

Ubel, Loewenstein, and Jepson (2005) examined how 2 adaptation exercises influenced participants’ predicted quality of life if they had paraplegia. Before and after engaging in 1 of 2 adaptation exercises, participants predicted what their overall QoL would be 5 years after developing paraplegia. The first (“narrow”) adaptation exercise required participants to think back to a previous negative life experience and consider how their emotional response changed over time. The second (“broad”) adaptation exercise included the same exercise as the first but further required participants to consider the specific measures they might take to adapt to having paraplegia, by listing what activities they would do in order to cope physically and emotionally. Both adaptation exercises (narrow and broad) significantly increased participants’ predicted ratings of the quality of life that they would experience if they had paraplegia. Furthermore, the broad adaptation exercise was more effective than the narrow adaptation exercise. Thus, the more attention directed to the process of adaptation, the larger the increase in predicted QoL.

Another study (Damschroder et al., 2005) had participants consider the QoL of patients with paraplegia and produced similar results. Before making their evaluations, half of the participants completed an adaptation exercise which encouraged them to consider their own ability to emotionally adapt to negative events in general and specifically to having paraplegia. The adaptation manipulation significantly increased the value participants placed on life with paraplegia.
Ubel, Loewenstein, and Jepson (2005) conducted another study to examine whether defocusing exercises and/or adaptation exercises improved affective forecasts in a non disability-related domain. In an experiment similar to the original focalism experiment by Schkade and Kahneman (1998), Ubel, Loewenstein, and Jepson asked undergraduates to predict the life satisfaction of students attending college in either the Midwest or Southern California. As discussed previously, Schkade and Kahneman demonstrated that Midwestern students were especially likely to rate the QoL of hypothetical California students as being high when they placed great importance on the climate in their evaluations, which is strong evidence of a focalism.

In the study by Ubel, Loewenstein, and Jepson (2005), all participants were undergraduate students at the University of Michigan. Half of the participants predicted the life satisfaction of a hypothetical student (someone similar to them) who was also attending the University of Michigan. The other half predicted the life satisfaction of a hypothetical student (someone similar to them) attending the University of California, Los Angeles (UCLA). However, before making their predictions, participants engaged in either a defocusing task or an adaptation exercise.

The defocusing task required participants to rate how much their enjoyment of many everyday activities (e.g., eating lunch, reading a good book, going to the movies, talking with a friend, buying clothes) would be affected by the living in Southern California. The adaptation exercise required participants to think back to a previous negative life experience and consider how their emotional response changed over time.

In stark contrast to the Schkade and Kahneman (1998) study, participants in this study did not predict that life satisfaction would be better for students living California than it would be
students living in the Michigan (i.e. the Midwest). However, results did show that both the defocusing task and the adaptation exercise reduced the predicted life satisfaction of students living in Southern California. The reduction was larger following the defocusing task than it was for the adaptation exercise. These findings suggest that if participants had inaccurately predicted that life would be better in California, either intervention would have improved affective forecasts, especially the defocusing task.

Prior to predicting the life satisfaction of another student, living in either Southern California or the Midwest, participants in the study by Schkade and Kahneman (1998) first rated their own life satisfaction with specific aspects of life, including seasonal climate and natural beauty of surroundings, whereas participants in the study by Ubel, Loewenstein, and Jepson (2005) did not. This may explain why participants in the later study did not predict that life satisfaction would be better for students living in California. Participants may not have been focused on the climate and natural beauty associated with Southern California when making their predictions, due to the lack of priming in regard to climate and natural beauty may not have been salient in the minds of participants. The data for both of these studies were collected during the winter. However, this evidently did not cause participants to focus on the climate when making their predictions.

Studies have documented focalism in domains as diverse as reactions to football games, dormitory selections, and geographic locations (Dunn et al., 2003; Schkade & Kahneman, 1998; Wilson et al., 2000). However studies have provided very little support for the existence of a focalism bias when it comes to chronic health conditions (Ubel et al., 2001; Ubel, Loewenstein, & Jepson, 2005; Walsh & Ayton, 2009b). One possibility is that focalism plays a larger role in
the affective forecasting of transient and/or trivial events, like emotional reactions to football
games, than it does for more chronic and serious ones, like being diagnosed with kidney disease.

In regard to living in a nicer climate, attention to either cause (focalism and failure to account for affective adaptation) may enhance affective forecasts. In regard to chronic disability, it seems more effective to get people to appreciate affective adaptation. Thus, failure to account for affective adaptation is probably a more appropriate explanation for the impact bias in regard to chronic health conditions (Damschroder et al., 2005; Ubel, Loewenstein, & Jepson, 2005). It is also important to keep in mind that the 2 major causes of the impact bias – focalism and failure to account for affective adaptation – are not mutually exclusive processes (Walsh & Ayton, 2009b). However, it seems likely that their relative contribution to the impact bias depends on the nature of the affective forecasts being made.

In contrast to the disappointing results for defocusing tasks, studies have found positive evidence that getting people to think about adaptation increases the predicted QoL associated with having a chronic health condition. After considering how they had adapted to adversity in the past, people tended to predict that disabilities would have less of a negative impact on their QoL than they would have otherwise predicted without such an intervention. This strongly supports the idea that people commonly fail to appreciate their powers of adaptation and the conclusion that failure to account for affective adaptation contributes to the impact bias (Gilbert et al., 1998). Given the dramatic impact observed in these studies, adaptation exercise are likely to be widely applicable and deserve further investigation.

Mental Simulation: A Common Element in Affective Forecasting Errors

All affective forecasting errors seem to involve a common element: mental simulation.
When trying to predict emotional responses to a future event, people use their imagination to simulate those events in their minds (Gilbert & Wilson, 2007). They simply close their eyes and imagine the future event as if it were happening now (i.e., in the present). Then, with that simulated experience in their mind, they imagine how it would feel.

Research has shown that mental simulations of the future elicit affective responses in the present. Participants in one study, who were merely waiting to receive an electric shock, showed increased neural activity in parts of the cortical pain matrix (Berns et al., 2006). Other studies, using functional magnetic resonance imaging (fMRI), have shown that the neural activity associated with anticipating outcomes generally occurs in the same brain areas as when the outcome is actually experienced (e.g., Breiter, Aharon, Kahneman, Anders, & Shizgal, 2001).

People use their immediate affective responses to mental simulations as predictors of the actual affective responses they would have if the imagined event were to occur (Damasio, 1994; Gilbert, 2006; Schwarz & Strack, 1999). Thus, it is not that people imagine feeling anxious while giving a speech. Rather, they imagine giving a speech, feel anxious, and then predict that they will feel anxious if they were to give actual speech in the future. Using the imagination to create mental simulations of future events allows people to preview those events and "pre-feel" those events (Gilbert & Wilson, 2007). We know that winning a game would feel better than losing a game, that it would probably be nerve-racking to speak in front of a large crowd, and that winning the lottery would be more enjoyable than having a leg amputated. We know these things because we can close our eyes, imagine these events, and get an immediate sense of how we are likely to feel. Unfortunately, the pre-feelings associated with mental simulations are not very accurate predictors of actual affective experiences.

Research suggests that the main reason why people make affective forecasting errors is
because they do not accurately imagine future events (Gilbert & Wilson, 2009). For example, people tend to focus their imagination on a particular aspect of the event and ignore others (focalism; Wilson et al., 2000). They also tend to imagine their immediate affective response to an event and fail to consider how that response will fade (immune neglect; Gilbert et al., 1998). This is a problem because when a person’s mental simulation of an event is inaccurate, the affective forecasts that are based on it tend to be inaccurate as well. Mental simulations do not generate all the richness and reality of genuine perceptions, and thus they fail to provide us with accurate information about our future emotional states.

Initial attempts to improve the accuracy of affective forecasting have concentrated on improving the accuracy of using one’s imagination (mental simulation) by having participants engage in either defocusing tasks or adaptation exercises, and have produced mixed results (Ayton et al., 2007; Damschroder et al., 2005; Dunn et al., 2003; Ubel et al., 2001; Ubel, Loewenstein, and Jepson, 2005; Walsh and Ayton, 2009b; Wilson et al., 2000). However, mental simulation is not the only way to make an affective forecast.

Surrogation: An Antidote for Affective Forecasting Errors?

Yes, our ability to imagine our future emotions is flawed. Fortunately, we do not have to rely on our imaginations. We do not have to imagine what it would feel like to plan a wedding, purchase a home, or work in a prison. There are many people who are doing these things right now. And many of these people would be happy to tell us all about it. When trying to predict our affective response to a future event, we have the option of simply asking someone who is currently experiencing that event to tell us how they feel (Gilbert, 2006).
Basically, there are 2 methods for making affective forecasts: using information from imagined experience or using information from actual experience. In order to be as accurate as possible, Gilbert (2006) argues that people should base their affective forecasts on the actual feelings reported by people who are currently experiencing (or have just recently experienced) the event in question - a process termed surrogation. Surrogation eliminates the need to rely on mental simulation. Thus, it is immune to the many errors that imagination produces.

For example, consider a woman who was just dumped by her long-time boyfriend. Research suggests that she will (inaccurately) expect her unhappiness to be intense and long-lasting. Her expectation of sadness will likely intensify as she imagines potential aspects of her future romantic situation, such as sitting at home alone on Saturday night. However, this woman might also call her friend – a friend who was dumped a few months ago - and find out that her friend is currently happy and enjoying the single-life. If the woman takes her friend’s reported experience into consideration, she might accurately predict that she too will recover and be happy again soon.

Recent research studies have shown that surrogation is an effective method that leads to strikingly accurate affective forecasts (Gilbert, Killingsworth, Eyre, & Wilson, 2009; Norwick, Gilbert, & Wilson, 2006; Walsh & Ayton, 2009a). However, these same studies have also shown that people are reluctant to use surrogation and prefer to rely on their mental simulations of future events.

In recent experiments by Norwick et al. (2006), the use of a surrogate’s reported affect following a given experience alleviated the affective forecasting errors typically associated with focalism and immune neglect. In one study, Norwick et al. compared people’s affective forecasts to their actual affective states after they were given a prize and then engaged in a tedious task.
Participants received a prize (i.e., a gift certificate for ice cream at a local shop) and were then asked to perform a tedious task (i.e., counting geometric shapes on a computer screen). After completing the tedious task, participants rated their affect.

Next, a second (new) group of participants were informed that they would also receive a prize and then perform the same tedious task. Some of these participants (simulation condition) were told what the prize would be and were asked to use their imaginations to predict what their affective states would be after completing the task. The remaining participants (surrogation condition) were not told what the prize was, but were instead shown the affective rating of a randomly selected participant from the first group. Thus, the participants in the surrogation condition were basically forced to rely on the affective report of the previous participant, as they were not provided with information that would allow them to use imagination when predicting what their affective states would be at the completion of the task. After all of the participants had made their affective forecasts, they were given the prize, completed the tedious task, and then rated their actual affective states.

Results showed that participants in the simulation condition were significantly less happy than they predicted they would be, demonstrating an impact bias. Presumably, this is because they focused their imaginations on the joy of receiving a prize and failed to anticipate the degree to which the tedious task would also influence their affective state. This is similar to the mistake made by college-football fans when predicting how happy they would be if their team were to win a big game (Wilson et al., 2000). In contrast, participants in the surrogation condition made extremely accurate affective forecasts. These participants did not know what their prize would be. However, they did know the affective state of someone else (who had received the same
prize) at the completion of the boring task. They had no choice but to base their judgments on the experiences of the surrogates, and by doing so, they correctly anticipated their future feelings.

In another experiment, Norwick et al. (2006) arranged for a group of participants to have an unpleasant experience. The participants were told that the researcher would flip a coin to determine whether or not they would win a prize (i.e., a gift certificate for pizza at a local restaurant). The experiment was rigged so that with each flip of the coin would come up tails and the participant would fail to win the prize. One minute after learning that they would not win the prize participants rated their current affective states.

Next, a second (new) group of participants were informed that they too would take part in the same coin-flipping game. Beforehand, they were asked to predict how they would feel 1 minute after winning the coin flip and one minute after losing the coin flip. Some of these participants (simulation condition) were told what the prize would be and its’ exact monetary value. The remaining participants (surrogation condition) were not told what the prize would be, but were instead shown the affective rating of a randomly selected participant from the first group. Thus, the participants in the surrogation condition were again forced to rely on the affective report of the previous participant when making their affective forecasts. After all participants made their affective forecasts, the coin was flipped and – surprise – they failed to win the prize. One minute after losing the coin flip, participants rated the current affective states.

Results showed that participants who were provided with information that encouraged them to imagine the possibility of winning and losing the prize (i.e. those in the simulation condition) predicted they would be very happy if they won the prize and very disappointed if they failed to win the prize. Results showed that they demonstrated an impact bias, significantly overestimating their disappointment following the loss. Presumably this is because they failed to
account for the workings of their psychological immune systems and how easily and quickly
they would rationalize the loss (“I don’t really like that restaurant” and “pizza is fattening”). In
contrast, participants in the surrogation condition – who were provided only with information
about the actual affective state of a previous participant – made more moderate and significantly
more accurate predictions.

In both of these experiments (Norwick et al., 2006), participants made much more
accurate predictions of their future feelings when they learned how someone else had felt in the
same situation (surrogation) than when they tried to imagine how they themselves would feel
(simulation). However, when Norwick et al. (2006) described these 2 experimental situations
(winning a prize, losing a prize) to an entirely new group of participants and then asked them
which type of information (simulation or surrogation) they would rather have in order to predict
their future affective states, nearly all indicated they would prefer the simulation information.

More recent experiments have produced similar findings. Gilbert, Killingworth, et al.
(2009) arranged for undergraduate women to participate in a speed date (i.e. a 5-minute private
conversation) with an undergraduate male student. Afterwards, the women reported how much
they had enjoyed the speed date on a 100-mm continuous scale of enjoyment with end points
labeled not at all and very much.

Next, a second (new) group of women were informed that they too would participate in a
speed date. Before the speed date took place, half of the women were given simulation
information and half were given surrogation information. The simulation information consisted
of their date’s picture and personal profile. The surrogation information consisted of a previous
participant’s enjoyment rating of a speed date with the same man. After receiving their specified
information, all of the women then predicted how much they would enjoy their upcoming speed date (affective forecasts).

After their affective forecasts were made, each woman was shown the other type of information (simulation or surrogation) that they had not received before making their predictions. This was to ensure that each woman had all of the same information about the man with whom they would have a speed date before the actual date occurred, but after their prediction had been made. The only difference between the groups of women was the type of information they received prior to making their affective forecasts (simulation information or surrogation information).

Next, these women participated in their actual speed dates, and then, afterward, rated their actual enjoyment on the same scale used previously (affective reports). The women also reported which type of information (simulation or surrogation) they believed would have allowed them to be more accurate in their affective forecasts about the speed date they just had, as well as, about a possible future speed date with an unknown man.

The results showed that women who used surrogation information were significantly more accurate in their affective forecasts than the women who used simulation information. In fact, the use of surrogation information improved affective forecasting error by 49%. However, 75% of the women believed that simulation information would have allowed them to make a more accurate affective forecast about the speed date they just had, and 84% believed the same about a future date with another man.

In another experiment by Gilbert, Killingsworth, et al. (2009), undergraduates were led to believe that they had been given negative personality feedback from a peer. Participants were told that they would write a brief story about themselves and that this story would be evaluated
by a peer in a nearby room, who would use it to classify them as one of three personality types: Types A, B, or C. However, in reality, there was no peer and the experiment was rigged so that every participant would be classified as personality Type C (negative personality feedback).

Participants were provided with detailed descriptions of the three personality types. The Type A personality description was positive, the Type B personality description was neutral, and the Type C personality description was negative. For example, The Type C personality description contained statements such as "People like you primarily because you don’t threaten their competence."

After reading the descriptions, participants wrote their stories, which were then (ostensibly) given to a peer in a nearby room. A short time later, the researcher informed participants that their peer had classified them as having the Type C personality. Ten minutes after receiving the negative feedback, participants reported their affective state, using a continuous 100-mm scale, with end points labeled very bad and very good. The affective reports from this initial group of participants were collected in order to gain surrogation information for use in the next (main) part of the study.

In the second part of the study, a new group of undergraduates were also told that they would also write a story and that a peer would evaluate the story in order to classify them as 1 of the 3 personality types. These participants were randomly assigned to receive either simulation information or surrogation information. Participants in the simulation condition were shown complete descriptions of the 3 personality types. Thus, these participants had accurate information about the upcoming event which allowed them to use their imaginations when making their affective forecasts. Participants in the surrogation condition were not shown personality descriptions. Instead they were given a randomly selected affective report of an
undergraduate from the initial group, who had been classified as a type C.

All participants were then asked to predict what their affective states would be a few minutes after their peer classified them as each of the 3 personality types, by marking 3 continuous 100mm scales, with endpoints labeled very bad and very good. After the affective forecasts were made, participants in the surrogation condition were provided with the descriptions of the three personality types and were asked to indicate which personality type best described them.

All participants then wrote their stories and were later told that their peer had classified them as having a Type C personality. Ten minutes after receiving the feedback, participants then rated their current affective state on the same scale as before. As in the previous study, affective forecasts were significantly more accurate when participants used surrogation information rather than simulation information. In fact, the use of surrogation information reduced affective forecasting error by 63%.

Gilbert, Killingsworth, et al. (2009) then recruited a new group of undergraduates to determine which type of information they would prefer to use when asked to make affective forecasts. These participants were given descriptions of the procedure used in the main part of the study and were asked which type of information (i.e., descriptions of the 3 personality types or the affective report of a randomly selected previous participant) would be more useful for making accurate affective forecasts. Mistakenly, these participants believed that the simulation information would be the most helpful.

These studies provide 2 major findings. First, when people utilize the process of surrogation they make extremely accurate affective forecasts. Secondly, people do not seem to believe this.
One of the benefits of being a social and linguistic animal is that people can capitalize on the experience of others and do not have to figure everything out for themselves (Gilbert, 2006). Interpersonal communication can serve as "vicarious observation" that enables people to learn about the world without ever having to leave the comfort of their home (Quine & Ullian, 1978). The fact that people can communicate with each other about their affective response to different events should provide a simple antidote to affective forecasting errors. However, people are reluctant to use surrogation (Gilbert, Killingsworth, et al., 2009; Norwick et al., 2006; Walsh & Ayton, 2009a).

Research suggests that resistance to surrogation may be a result of the common tendency to overestimate one’s difference from others (Goethals, Messick, & Allison, 1991; Kruger, 1999). People like to view themselves as unique and seem to believe that they themselves are the only ones that can legitimately predict their emotional responses (Gilbert, 2006). People think of themselves as different from most other people, and they tend to think of themselves as better than the average person in many ways. This phenomenon has been referred to as the holier than thou effect (Epley & Dunning, 2000) and is related to self-serving bias in attributional theory (Miller & Ross, 1975).

Most business managers believe they are more competent than average business managers (Larwood & Whittaker, 1977). Over 90% of college professors believe they are above average teachers (Cross, 1977). Most drivers believe they are more skillful and safe than average drivers (Svenson, 1981; Walton & Bathurst, 1998). Furthermore, ironically, people believe they are less susceptible to bias than the average person (Pronin, Lin, & Ross, 2002). The tendency for people to think of themselves as better than others may actually be part of a more general
tendency for people to think of themselves as different from others (Gilbert, 2006). People do not always consider themselves superior, but they almost always consider themselves unique.

People believe they have greater ability than others when it comes to performing relatively easy tasks (e.g., riding a bike, driving a car), but believe they have less ability than others when it comes to more difficult and/or unfamiliar tasks, such as playing chess or juggling (Kruger, 1999). Also, people believe they are more likely than others to engage in both positive – and negative – behaviors (Johnson, Cain, Falke, Hayman, & Perillo, 1985). People frequently report the belief that they are more likely to engage in selfless, altruistic behaviors than others (Epley & Dunning, 2000; Goethals et al., 1991). However, people also believe that they are more likely to engage in selfish behaviors (Johnson et al., 1985). Furthermore, people predict that the same life events will impact their lives differently than it impacts the lives of others. For instance, people predict that their own happiness would be more highly impacted by having kidney disease than other people’s happiness is (Walsh & Ayton, 2009b).

Individuals do differ, and people do have unique responses to events. Thus, one person’s affective response to a specific event is not a perfect predictor of another’s. Certainly, the more similar a person is to a surrogate, the more relevant and informative the surrogate’s experiences will be for that person (Gilbert, 2006). However, there are 2 major reasons to believe that the affective reactions of different people are actually quite similar. First, people all around the world – people with very different belief systems - have very similar affective responses to a wide of stimuli (Nisbett & Borgida, 1975). People seem to prefer winning over losing, having friends over having enemies, feeling warm over feeling cold, and feeling satiated over feeling hungry (Gilbert, 2006). Second, people tend to live by, work with, befriend, and marry other people with similar preferences and common personality traits (Miller & Nelson, 2002; Synder
& Fromkin, 1977). Thus, people are likely to acquire surrogation information from others (e.g., their friends, coworkers, and neighbors) who are very likely to have similar affective responses.

The information we need to make accurate affective forecasts is usually readily available in the form of the affective reports of other people (i.e., surrogation information). However, due to misplaced confidence in the accuracy of their own mental simulations, people prefer to rely on their own imaginations (Gilbert, Killingsworth, et al., 2009; Norwick et al., 2006). Nonetheless, these researchers have demonstrated that when people are deprived of the information needed for mental simulation - and are basically forced to rely on surrogation information - they make remarkably accurate affective forecasts.

Witholding information about a future event (information that is required for mental simulation) is feasible in laboratory experiments, but it is far from feasible in practice (Walsh & Ayton, 2009a). In the real world, when people make predictions about the emotional impact of a future event, it is unlikely that a person would know how an event is making someone else feel, without also having information about the event itself. For example, if someone wanted to predict how much they would enjoy a new movie, that person would not consider the ratings of movie critics in isolation; they would also know something about the plot, actors, etc.

In nearly all affective forecasting situations, both types of information are usually available, and people are free to use one, the other, or both when making their predictions. In order to determine whether surrogation is an effective antidote for affective forecasting errors, it is necessary to determine whether people will utilize surrogation information when they also have simulation information available (i.e., information about the future event that allows for mental simulation).
Walsh & Ayton (2009a) recently conducted a study to explore whether people incorporate surrogation information into their affective forecasts when they have both surrogation and simulation information available. These researchers asked undergraduates to imagine that they had been diagnosed with kidney disease and then asked them to predict what their level of happiness would be one year after living with this chronic health condition. Before making their predictions, participants were randomly assigned to one of three groups: simulation information only, surrogation information only, or both surrogation and simulation information.

The simulation information consisted of a detailed description of the symptoms and treatments associated with kidney disease. The surrogation information consisted of the average actual happiness rating of 10 people who had been living with kidney disease for over a year. Participants, who received surrogation information, were told that 10 people who have been living with kidney disease for at least 1 year reported an average happiness rating of 6.5 on a scale ranging from 1 (not happy) to 9 (very happy). After receiving their specified information (surrogation information only, simulation information only, or both types of information), all participants then predicted how happy they expected to be a year after living with kidney disease, using the same rating scale.

Participants who were given surrogation information only predicted they would be significantly happier a year after living with kidney disease than did the participants given both types of information and participants given simulation information only. That is, the participants given surrogation information only made significantly more accurate predictions (i.e., closer to the surrogate value) than did participants in the other 2 groups.

Furthermore, participants given both types of information made more accurate predictions than participants given simulation information only. This finding provides evidence
that people do incorporate surrogation information into their affective forecasts when they have both surrogation and simulation information available, although it should be noted that the influence of surrogation information was reduced by the presence of simulation information.

Although participants who had to make their affective forecasts on the basis of surrogation information only made more accurate predictions than the participants in the other two groups, their predictions were not as accurate as they could have been. The predicted happiness rating of participants with surrogation information only (5.7) was significantly less than the average happiness rating of people actually living with kidney disease (6.5). Thus, participants somewhat discounted the surrogation information, even when it was the only information presented, presumably due to the tendency for people to believe they are unique.

These findings are consistent with both previous research (Gilbert, Killingsworth, et al., 2009; Norwick et al., 2006) and Gilbert’s (2006) claim that affective forecasts can be improved by withholding simulation information and providing only surrogation information. More importantly, these findings show that when surrogation information is made available along with simulation information, people use both types of information when predicting their emotional response to future events (Walsh & Ayton, 2009a). This suggests that informing people about the affective responses of others’ can help them make more accurate affective forecasts - both with and without simulation information.

In summary, several studies have examined the process of surrogation, which involves using the actual feelings reported by people who are currently experiencing (or have just recently experienced) the event in question as the basis for affective forecasts (Gilbert, Killingsworth, et al., 2009; Norwick et al., 2006; Walsh & Ayton, 2009a). These studies have demonstrated that when people are deprived of the information needed for mental simulation – and are basically
forced to rely on surrogation information – they make remarkably accurate affective forecasts. However, surrogation is not exactly an antidote for affective forecasting errors, as these same studies have also shown that that people are reluctant to use surrogation and, if given the choice, would prefer to rely on their imaginations (i.e. mental simulation). Withholding information about a future event (information that is required for mental simulation) is far from feasible in real life and there are rarely situations in which people make affective forecasts in the absence of simulation information (Walsh & Ayton, 2009a). However, one recent study has demonstrated that when surrogation information is made available along with simulation information, people utilize both types of information when predicting their emotional response to future events (Walsh & Ayton, 2009a). Thus, it is likely that informing people about the affective responses of others’ can help them make more accurate affective forecasts – even when simulation information is also available.
CURRENT STUDY

The first major aim of this study was to corroborate the previous finding that affective forecasting errors due to immune neglect lead to misjudgments about the relative emotional impact of minor vs. moderate negative experiences (Gilbert et al., 2004). The study by Gilbert et al. is the only study found in the literature that has specifically addressed this research question. These researchers found that people expect to recover faster from minor insults than from stronger insults; however, people actually recover faster from the stronger insults.

Participants in the main part of the current study predicted how happy (or unhappy) they would feel if they were to receive negative personality feedback. Later, they actually received negative personality feedback and reported their actual affective states 10 minutes afterward.

People tend to believe that major traumas will have a more enduring negative emotional impact than minor traumas. However, when negative emotional experiences are sufficiently strong, they activate the psychological immune system, which immediately begins working intensively to heal emotional wounds and attenuate the experience of negative affect. On the other hand, minor negative emotional experiences are not likely to trigger the immune system, and thus the negative affect they produce lingers.

In the current study, arrangements were made for participants to have a mildly negative emotional experience. Participants were asked to write a brief story about themselves which was (ostensibly) given to another participant (a peer) in a nearby room, who used it to evaluate their personality. Participants were later informed that the peer evaluated them as having a somewhat negative personality. This negative personality feedback constituted the negative emotional experience (i.e. the trauma). The study was arranged so that the trauma in one experimental condition would be very minor and thus not likely to trigger the psychological immune system.
The trauma in the other experimental condition was moderate – designed to be strong enough to trigger the psychological immune system, but not strong enough to cause any significant or lasting psychological harm.

Participants in the moderate (stronger) trauma condition were led to believe that they would later meet and interact with the person who made the negative evaluation of their personality, whereas participants in the minor trauma condition were told that they would not meet the person. Presumably, the initial distress associated with being insulted by a person with whom one expects to interact is severe enough to trigger the psychological immune system, whereas the initial distress associated with being insulted by someone considered to be an insignificant stranger is not. This is the same manipulation of trauma severity used in the study by Gilbert et al. (2004).

The most pervasive finding in the affective forecasting literature is that people overestimate their emotional responses to future events, demonstrating an impact bias (Gilbert et al., 2004; Gilbert, Killingsworth, et al., 2009; Gilbert et al., 1998; Norwick et al., 2006; Walsh & Ayton, 2009a). The impact bias is especially pronounced when predicting emotional responses to future negative events, such as receiving negative personality feedback (Gilbert, et al., 2004). Thus, it was expected that participants’ actual happiness ratings, provided after receiving the negative personality feedback, would be higher than what participants predicted. The first hypothesis of the current study was:

1. The affective reports of participants in both trauma conditions will be significantly higher than their affective forecasts.

However, it was expected that the moderate trauma would be strong enough to trigger the psychological immune system, whereas the minor trauma would not. Thus, participants in moderate trauma condition were expected to provide higher happiness ratings, 10 minutes after
receiving the negative personality feedback, than participants in the minor trauma condition. Specifically, it was hypothesized:

2. The affective reports of participants in the moderate trauma condition will be significantly higher than the affective reports of participants in the minor trauma condition.

It was also expected that participants would fail to account for affective adaptation when predicting their emotional responses. Therefore, participants would fail to distinguish between situations that tend to trigger (or not trigger) the immune system’s operations. Thus, due to immune neglect, participants in the moderate trauma condition would predict that they would be less happy, 10 minutes after receiving the negative personality feedback, than participants in the minor insult condition. Specifically, it was hypothesized:

3. The affective forecasts of participants in the moderate trauma condition will be significantly lower than the affective forecasts of participants in the minor trauma condition.

The second major aim of the current study was to determine if people more accurately predict their affective responses to receiving negative personality feedback when they knew how another person responded to the same negative feedback. That is, this study sought to examine the utility of surrogation for improving affective forecasts. More specifically, the current study sought to determine if people would incorporate surrogation into their affective forecasts and make more accurate predictions when they had both surrogation and simulation available.

A proposed antidote for affective forecasting errors is to base one’s prediction on the reported feelings of other people (i.e., surrogates) who are currently experiencing or have just recently experienced the event in question. Several recent research studies have shown that surrogation is an effective method that leads to strikingly accurate affective forecasts, when participants are deprived of simulation information – that is, when participants are not given
information about the upcoming event that will enable them to use their imaginations (Gilbert, Killingsworth, et al., 2009; Norwick et al., 2006; Walsh & Ayton, 2009a). However, these studies have also shown that people prefer simulation over surrogation information and would rather rely on their imaginations than the reported feelings of someone else. This is problematic because imagining a future event when making affective forecasts is prone to biases, such as focalism and immune neglect, and thus are often inaccurate.

In real life, when people are making affective forecasts, they usually have both types of information available. They have information about the event that allows them to imagine what it would feel it, and they also have access to information about how other people feel (or have felt) about the event in question. That is, they can simply ask someone they know. Thus, in order for surrogation to effectively improve affective forecasts, it needs to be determined if people will make more accurate affective forecasts by utilizing surrogation information when they also have simulation information available.

A recently conducted study by Walsh and Ayton (2009a) is the only one found in the literature that specifically addresses this research question. They found that people do integrate surrogation information into their predictions, making more accurate affective forecasts, when they have both surrogation and simulation information available as opposed to having simulation information only. However, the presence of simulation information lessened the degree to which surrogation information was utilized. That is, participants who received surrogation information only made even more accurate affective forecasts than participants who received both surrogation and simulation information. This is an important finding that the current study aimed to corroborate.
The procedure of the current study was modeled after the procedure used by Gilbert, Killingsworth, et al. (2009). Participants in the main part of the current study predicted how happy (or unhappy) they would feel after receiving negative personality feedback. Later, participants received the negative personality feedback and reported their actual affective states 10 minutes afterward. Before making their predictions, participants were randomly assigned to 1 of 3 prediction information conditions: simulation information only, surrogation information only, or both types of information. The simulation information consisted of detailed descriptions of the 3 possible personality classifications. These descriptions provided information about the upcoming personality evaluation that enabled participants to simulate the future when making their affective forecasts. The surrogation information consisted of the average happiness rating (affective report) of previous participants who had experienced receiving the same negative personality feedback. Participants in the both types of information condition received the detailed personality descriptions as well as the average happiness rating of previous participants.

It was expected that participants would utilize surrogation information when making their predictions and thus improve their affective forecasts. However, it was also expected that the presence of simulation information will lessen the degree to which surrogation information was utilized. Therefore, it was specifically hypothesized:

4. The affective forecasts of participants in the surrogation information only condition will be significantly more accurate than the affective forecasts of participants in the simulation information only condition.

5. The affective forecasts of participants in the surrogation information only condition will also be significantly more accurate than the affective forecasts of participants in the both types of information condition.

6. The affective forecasts of participants in the both types of information condition will be significantly more accurate than the affective forecasts of participants in the simulation information only condition.
The third major aim of this study was to determine if there is an interaction between trauma severity and the effectiveness of surrogation information for improving affective forecasts. This is the first study on the accuracy of affective forecasting to vary both the severity of trauma and the availability of simulation vs. surrogation information. However, one hypothesis regarding interaction effects was made, based on previous findings found in the affective forecasting literature (Gilbert et al., 2004; Gilbert, Killingsworth, et al., 2009; Gilbert, et al., 1998; Norwick et al., 2006; Walsh & Ayton, 2009a). It was expected that the participants in the moderate trauma, simulation information only condition would have the greatest affective forecasting error score. Specifically, it was hypothesized:

7. The forecasting errors of participants in the moderate trauma, simulation information only condition will be significantly higher than the forecasting errors of participants in the other 5 experimental conditions.
PART 1: PRELIMINARY STUDY

Method

Overview

The main purpose of the preliminary study was to collect surrogation information for use in the main part of the study. The preliminary study involved manipulation of only 1 independent variable (severity of trauma: minor, moderate) and aimed to gather data on just 1 dependent measure (affective report). Participants were randomly assigned to the minor or moderate trauma severity condition. The 2 groups were matched for gender. The mean affective report ratings for both trauma conditions were calculated and used as surrogation information for participants in the corresponding trauma conditions of the main study.

Participants

Eighteen undergraduate students at the University of North Texas (UNT) were recruited via the UNT SONA System and participated in the preliminary study in exchange for credit in their introduction to psychology course. Of the initial 18 participants, 2 classified themselves as having the Type C personality and were excluded from data analysis. Therefore, the final sample for the preliminary study included 16 participants. Nineteen percent of the final sample \((n = 3)\) classified themselves as having the Type A personality and 81% \((n = 13)\) classified themselves as having the Type B personality.

Sixty-nine percent of these participants \((n = 11)\) were females and 31% \((n = 5)\) were males. Participants assigned to the minor trauma condition \((n = 8)\) included 6 females and 2 males, whereas participants assigned to the moderate trauma condition \((n = 8)\) included 5 females and 3 males.
Age of the participants ranged from 18 to 38 years ($M = 21$, $SD = 4.84$). Ethnically, 63% ($n = 10$) were European American, 19% ($n = 3$) were African American, 13% ($n = 2$) were Hispanic, and 6% ($n = 1$) were Asian.

In regards to marital status, 81% ($n = 13$) were single, 13% ($n = 2$) were in a committed relationship, and 6% ($n = 1$) were divorced. Nineteen percent ($n = 3$) of the participants had children. In regards to education status, 6% ($n = 1$) were part-time students and 94% ($n = 15$) were full-time students. In regards to employment status, 13% ($n = 2$) were employed full time, 31% ($n = 5$) were employed part time, and 56% ($n = 9$) were unemployed.

**Materials**

Informed Consent Form

The informed consent form is a 1-page document describing the (ostensible) purpose of the study, the basic requirements of participation, as well as the benefits and potential risks of participation (see Appendix A).

The informed consent was designed to be somewhat deceptive. It includes a false title of the study and somewhat misleading descriptions of the study’s purpose and participation procedures. However, each participant was fully debriefed at the completion of their participation in the study [see debriefing form (Appendix O)].

The false title provided on the informed consent form is “Impression Formation: Initial Evaluations of Others’ Personalities.” In regard to the purpose of the study, the informed consent form states:

The purpose of this study is to explore the nature of initial impression formation. The primary goal of this study is to examine how people with different personalities judge each other. A secondary goal of this study is to explore the emotional component of giving and receiving informal personality feedback. The results of this study will
contribute to the existing body of research on impression formation and will be used to help guide further theoretical development.

In regard to participation procedures, the informed consent form states:
You will be provided with detailed descriptions of 3 personality types. Based on these descriptions, you will be asked to determine which personality type best describes you. Later in the study, you and another participant will be asked to evaluate each other’s personality.

You will be paired with another participant, who is currently in a nearby research room with another experimenter. Each of you will be asked to write a short autobiographical story for the other to read. After these stories are written, they will be exchanged by the experimenters. Your story will be given to the participant in the other room and you will be given the other participant’s story. You will then be asked to evaluate the other participant’s story and use it to classify him or her as 1 of the 3 personality types. At the same time, the other participant will be asked to evaluate your story and use it to classify you as 1 of the 3 personality types. Once the evaluation forms are complete, they will be exchanged by the experimenters. Your evaluation of the other participant’s personality will be given to the other participant and you will be given the other participant’s evaluation of your personality.

Afterwards, you will be asked to fill out a brief questionnaire about your experience in the study. We ask that you be as honest as possible in all of your responses.

The false title was used in order to lead participants to believe that the personality evaluations were the main interest of the study, rather than the accuracy of their affective forecasts. If participants knew that the main interest of the study was to determine the accuracy of their affective forecasts compared to their actual affective reports, they may have demonstrated expectancies that influenced the results.

Personality Descriptions

Participants were provided with a 1-page sheet containing detailed descriptions of the 3 personality types (A, B, and C) and brief instructions at the top of the page. Participants were instructed to take a few minutes to carefully read and review each description. The description of Type A personality is quite positive, the description of Type B is rather neutral, and the
description of Type C is somewhat negative, including statements such as, “These people… have few qualities that distinguish them from others” and “They are generally well-liked, partly because they do not pose a threat to the competencies of others.” Previous studies have used these same personality descriptions and have shown that most people are displeased when they are classified as Type C (Gilbert et al., 1998; 2004; Gilbert, Killingsworth, et al., 2009). Once provided with the personality descriptions, participants had them available throughout the remainder of the study. For complete descriptions of each personality type, please see Appendix B.

Self Evaluation Form

The self evaluation form is a 1-page, self-report questionnaire containing 4 items (see Appendix G). Participants were instructed to answer these questions based on the personality descriptions provided. The first 3 items ask participants to indicate how well each of the 3 personality types describes them, using a 10-point, Likert-type scale with endpoints labeled (1) not at all and (10) very well. Responses to these first 3 items were not used in data analysis. Their intended purpose was to ensure that participants carefully consider the descriptions of each personality type.

The fourth item requires participants to indicate the personality type that best describes them. Participants who indicated Type C as the personality type that best describes them were removed from data analyses. Because they consider themselves to have the negative personality type, being classified as Type C by their peer would be viewed as accurate and would not constitute a negative emotional experience (i.e., trauma). Such participants are not relevant to the current study and their data were not included in the analyses.
Story Form

The story form consists of a 1-page, lined sheet of paper, with brief instructions at the top. Participants were instructed to take the next 5 minutes to write a brief story about themselves, providing information that might be helpful in determining their personality style (see Appendix H).

Peer’s Story

The peer’s story consists of a completed story form. Ostensibly this story form was completed just moments before, by another participant (a peer) located in a nearby research room. However, the story provided was actually handwritten by the researcher and was intended to represent a basic autobiographical story that a first-year undergraduate college student might write under the experimental conditions of the current study (see Appendix I). The story reads as follows:

I am a full-time college student and I work part-time at a coffee shop. This is my first year of college – I’m not sure what my major will be yet. I eventually want a job that will allow me to be creative. I definitely do not want to sit behind a desk all day long. I try to take my education seriously and I make pretty good grades. Someday, I would like to get married and have a couple of kids. Ideally, we would live in a house by the ocean. I am close with my family and I have lots of friends. People tell me that I am outgoing and friendly. I always try to keep a positive attitude, even when things go wrong. I like hanging out with my friends, watching movies, surfing the web, and listening to music.

Peer Evaluation Form

The peer evaluation form is a 1-page document containing 2 items. The first item asks participants to indicate which of the 3 personality types (A, B, or C) best describes the participant they are evaluating. The second item asks participants to rate their level of confidence regarding the accuracy of this personality evaluation, using a 10-point, Likert-type scale with end
points labeled *not at all confident* and *extremely confident*. Participants were provided with the peer evaluation form at the same time they were provided with the peer’s story (see above). Participants were instructed to spend a few minutes reading and reviewing the other participant’s story before completing this form. They were also reminded that they may review the personality descriptions provided earlier to assist in their evaluation (see Appendix J).

**Personality Feedback**

The personality feedback consisted of a completed peer evaluation form. Ostensibly this form was completed just moments before by the peer in a nearby research room. In truth, the form was filled out by the researcher prior to the study. The form indicates that the participant was classified as the Type C personality. In addition, the form indicates a relatively high confidence rating in regard to the accuracy of this classification – the confidence rating is an 8 on the 10-point scale provided (see Appendix K).

**Affective Report Form**

The affective report form is of a 1-page document containing 1 item. This single item asks participants to rate their current affective state, using a 10-point, Likert-type scale with end points labeled *very unhappy* and *very happy* (see Appendix L). These actual happiness ratings constituted the dependent measure of affective report.

**Demographic Questionnaire**

This is a 1-page, self-report questionnaire containing questions about basic demographic information. Participants are asked to indicate their gender, age, race/ethnicity, marital status,
number of children, as well as their current educational and employment status (see Appendix M).

Debriefing Form

The debriefing form consists of a 1-page document with the true title of the current study at the top (see Appendix O). The participants were thanked for their participation and provided with the true purpose of the study, along with the major hypotheses and the possible benefits and applications of this study. The deception used in the study was carefully explained and the reasons for using it were provided.

Procedure

Undergraduates arrived at the research room individually and were greeted by an experimenter. They were provided with the informed consent form, which was read aloud by the experimenter. The experimenter ensured that participants followed along as it was read aloud and appeared to understand the information provided. Once students agreed to participate, they signed the informed consent form.

Participants were informed that the purpose of the study was to explore the nature of initial impression formation. They were told that the primary goals of the study were to examine how people with different personalities judge each other and, secondly, to explore the emotional component of giving and receiving informal personality feedback.

Participants were told that they would be provided with detailed descriptions of 3 personality types and that, based on these descriptions, they would be asked to select the personality type that best describes them. Participants were also informed that another participant
(a peer) was already seated in a nearby research room with another experimenter, and that they and the peer would each write a short autobiographical story for the other to read. They were told that each would use the story to classify the other as 1 of 3 personality types, and that each would be learn afterward how he or she was evaluated. However, in reality, there was no peer, and the experiment was rigged so that each participant would receive negative personality feedback (i.e., they would be classified as Type C). Participants were also told that, afterwards, they would be asked to fill out a brief questionnaire about their experience in the study.

Participants assigned to the minor trauma condition were told, “You will not meet the other participant at any point in the study.” In contrast, participants assigned to the moderate trauma condition were told, “At the conclusion of the study, you and the other participant will have a brief meeting to openly discuss your thoughts and feelings about the study.”

After the informed consent process was complete, participants were provided with the personality descriptions and were asked to carefully read and review the description of each personality type. Participants were then provided with self evaluation form. They indicated how well each personality type described them and selected the personality type that best described them.

Next, participants were provided with the story form. With the use of a timer, participants were given 5 minutes to write a brief story about themselves, providing information that might be helpful in determining their personality type. Participants, who were still working on their story when the 5 minutes elapsed, were instructed to finish up the sentence they were working on and then stop. Once completed, the experimenter took the participant’s story and left the room, ostensibly to exchange it with the alleged peer’s story.
The experimenter returned approximately 1 minute later and gave participants the peer’s story and a peer evaluation form. Participants were instructed to spend a few minutes reading and reviewing the peer’s story before completing the peer evaluation form. They were also reminded that they may consult the personality descriptions provided earlier to assist in their evaluation. Participants selected the personality type that they felt best described the peer and rated their level of confidence in the accuracy of this classification. Once completed, the experimenter took the peer evaluation form and again left the room, ostensibly to exchange it with the peer’s evaluation of their personality.

The experimenter returned approximately 1 minute later and gave participants their personality feedback – another peer evaluation form that was filled out by hand (ostensibly by the peer in the other room). The form indicated that that the participant was classified as the Type C personality and that the classification was made with relatively high confidence. That is, the form indicated a confidence rating of 8 on a scale ranging from (1) not at all confident to (10) extremely confident. At this point, after participants received the personality feedback, the experimenter again left the room, ostensibly to go make photocopies of the remaining research materials.

The experimenter returned 10 minutes later, apologized for the delay, and provided participants with an affective report form. The participants rated their current affective state, by marking a 10-point scale, ranging from (1) very unhappy to (10) very happy. This rating constituted their affective report.

Next, participants were given the demographic questionnaire. They provided information about their age, gender, race/ethnicity, etc. Finally, participants were provided with the debriefing form. The experimenter reviewed the debriefing form with the participants and
responded to any questions asked. The participants were then thanked for their participation and dismissed.

Results

An independent-samples $t$ test was conducted to test for a significant difference between the mean affective reports of the 2 trauma severity conditions. The results were not significant, $t(14) = -.16, p = .88$. The mean affective report of participants in the minor trauma severity condition ($M = 7.38, SD = 1.30$) did not differ significantly from the mean affective report of participants in the moderate trauma severity condition ($M = 7.50, SD = 1.77$). Thus, the overall mean for participants in both trauma conditions was calculated ($M = 7.44$), rounded to the nearest whole number (7), and used as surrogation information in the main part of the study. Please see Appendix C.
PART 2: MAIN STUDY

Method

Overview

The main study utilized a 2 (Trauma Severity: minor, moderate) X 3 (Prediction Information: simulation information only, surrogation information only, both types of information) experimental design. Participants were grouped by female and male gender and randomly assigned within gender to 1 of the 6 experimental conditions. This was done to assure there would be approximately equal numbers of women and men within each condition.

Participants in the minor trauma conditions were told that they would not meet the peer and participants in the moderate trauma conditions were told that they would ultimately meet with the peer. Participants in the simulation information only conditions were provided with detailed descriptions of the 3 possible personality classifications. Participants in surrogation information only conditions were provided with the mean affective report of a group of previous participants after they had received the same negative feedback. Participants in the both types of information conditions were provided with both the personality descriptions and the mean affective report of previous participants.

Three dependent measures were utilized: affective forecast, affective report, and forecasting error. All participants predicted how they would feel approximately 10 minutes after receiving negative personality feedback on a 10-point scale ranging from (1) very unhappy to (10) very happy. These predictions constituted their affective forecast. All participants then actually received negative personality feedback (ostensibly from another participant, a peer, in a nearby room) and reported their current affective states – 10 minutes later, using the same scale.
The ratings constituted their affective report. The forecasting error for each participant was calculated as the difference between the affective forecast and the affective report.

Most studies of affective forecasting have used very similar self-report scales of one’s affective state (e.g., Gilbert et al., 1998; Gilbert, Killingsworth, et al., 2009). Although quite simple in appearance, 1-item measures of happiness have demonstrated strong reliability and stability, and have a extensive background of evidence supporting their convergent, construct, concurrent, and discriminative validity (Andrews & Robinson, 1991; Fordyce, 1988). Studies have found moderately strong correlations between similar one-item self-report measures and other, more extensive, measures of affect, including the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) and the Affectometer (Kammann & Flett, 1983).

Participants

One hundred thirty-six undergraduate students at the University of North Texas (UNT) were recruited via the UNT SONA System to participate in exchange for credit in their introduction to psychology course.

Of the initial 136 participants, 15 classified themselves as having the Type C personality and 1 chose to withdraw their data from use in the study during the debriefing procedure. Data from these 16 participants were excluded from data analysis. Therefore, the final sample for the main study included 120 participants. Of the final sample, 37.5% ($n = 45$) classified themselves as having the Type A personality and 62.5% ($n = 75$) classified themselves as having the Type B personality.

Seventy-two percent of these participants were females ($n = 86$) and 28% were males ($n = 34$). Participants were matched for gender and randomly assigned to 1 of the 6 experimental
conditions. Each experimental condition included 20 participants. Two of the experimental conditions consisted of 15 females and 5 males and the remaining 4 experimental conditions consisted of 14 females and 6 males.

Age of the participants ranged from 18 to 42 years (M = 20.74, SD = 3.29). Ethnically, 53% (n = 64) were European American, 22% (n = 26) were African American, 13% (n = 16) were Hispanic, 6% (n = 7) were Asian, 2% (n = 2) were American Indian/Alaskan Native, and 4% (n = 5) classified themselves as other.

In regards to marital status, 70% (n = 84) were single, 23% (n = 28) were in a committed relationship, 4% (n = 5) were married and 3% (n = 3) were divorced. Thirteen percent (n = 15) of the participants had children. In regards to education status, 97.5% (n = 117) were full-time students and 2.5% (n = 3) were part-time students. In regards to employment status, 47% (n = 56) were unemployed, 37% (n = 44) were employed part-time, 13% (n = 16) were employed full-time, and 3% (n = 4) were self-employed.

Materials

Informed Consent Form

All participants were provided with the same informed consent form as the one used in the preliminary study (see Appendix A).

Personality Descriptions (Simulation Information)

All participants were provided with the same personality descriptions as those used in the preliminary study (see Appendix B). However, participants in the surrogation information only condition were not provided with the personality descriptions until after they made their affective
forecasts. Participants in the simulation information only condition and in the both types of information condition were provided with the personality descriptions prior to making their affective forecasts. The personality descriptions should have facilitated the use of the participant’s imagination, allowing them to use mental simulation when predicting how they would feel after receiving negative personality feedback (i.e., being classified as Type C).

Affective Report of a Previous Participant (Surrogation Information)

The surrogation information utilized in this study consisted of a completed affective report form. Participants were led to believe that this form was completed by a participant in a previous study. In reality, this affective report form was completed by the researcher, but was based on the mean affective report ratings obtained in the preliminary study.

In the preliminary study, the mean affective report of participants in the minor trauma severity condition ($M = 7.38, SD = 1.30$) did not differ significantly from the mean affective report of participants in the moderate trauma severity condition ($M = 7.50, SD = 1.77$). Thus, the overall mean for participants in both trauma conditions of the preliminary study was calculated ($M = 7.44$), rounded to the nearest whole number (7), and used as surrogation information in the main study. That is, the number 7 was circled on the completed affective report form given to all participants in the main study. Please see Appendix C.

Affective Forecasting Forms

Three separate versions of the affective forecasting form were used. A separate version was used for each of the 3 prediction information conditions (simulation information only, surrogation information only, and both types of information). The versions differed only in the
instructions presented at the top of the single-page document. These instructions were read
allowed by the experimenter.

Participants in the simulation information only conditions were provided with the following instructions:

On this form, we ask you to predict how you think you would feel approximately 10 minutes after the other participant has classified you as each of the 3 personality types: Type A, Type B, and Type C. For each prediction, please circle a single number on the 10-point scale provided. The number 1 means you expect to feel *very unhappy* and 10 means you expect to feel *very happy*. If you would like, you may use the personality descriptions to assist you in making your predictions. (Please see Appendix D)

Participants in the surrogation information only conditions were provided with the following instructions:

On this form, we ask you to predict how you think you would feel approximately 10 minutes after the other participant has classified you as each of the 3 personality types: Type A, Type B, and Type C. For each prediction, please circle a single number on the 10-point scale provided. The number 1 means you expect to feel *very unhappy* and 10 means you expect to feel *very happy*. Although you have not yet been provided with descriptions of the three personality types, you will be provided with the affective rating of a previous participant. [Document is handed to participant]. This affective report form has been randomly selected from a small group of previous participants. It was completed by one of these previous participants approximately 10 minutes after receiving his or her personality classification. If you would like, you may use it to assist you in making your predictions. (Please see Appendix E)

Participants in the both types of information conditions were provided with the following instructions:

On this form, we ask you to predict how you think you would feel approximately 10 minutes after the other participant has classified you as each of the 3 personality types: Type A, Type B, and Type C. For each prediction, please circle a single number on the 10-point scale provided. The number 1 means you expect to feel *very unhappy* and 10 means you expect to feel *very happy*. If you would like, you may use the personality descriptions to assist you in making your predictions. You will also be provided with the affective rating of a previous participant. [Document is handed to participant]. This affective report form has been randomly selected from a small group of previous participants. It was completed by one of these previous participants approximately 10 minutes after receiving his or her personality classification. If you would like, you may use it to assist you in making your predictions. (Please see Appendix F)
On all 3 versions of the affective forecasting form, participants were asked to predict how they would feel approximately 10 minutes after being classified as each of the personality types, using a 10-point, Likert-type scale with end points labeled very unhappy and very happy. The prediction made for the Type C personality constituted the participants’ affective forecast.

Self Evaluation Form

This is the same self evaluation form used in the preliminary study (see Appendix G). Participants who indicated Type C as the personality type that best described them were removed from data analyses.

Affective Report Form

This is the same affective report from used in the preliminary study (see Appendix L). Participants were asked to rate their current affective state, using a using a 10-point, Likert-type scale with end points labeled very unhappy and very happy. These actual happiness ratings constituted the dependent measure of affective report. In addition, a forecasting error score was determined for each participant by calculating the difference between their affective forecast and their affective report. The affective forecasting error is the difference between the affective forecasting form, last item (see Appendix D) and the affective report form.

Research Participation Questionnaire

The research participation questionnaire is a 1-page, self-report questionnaire containing 7 items (see Appendix N). The first item asked participants to indicate how upset they were when they first received their personality feedback, using a 10-point, Likert-type scale with
endpoints labeled (1) definitely not upset and (10) definitely upset. The second item asked participants to indicate if they expected to meet their partner, using a 10-point, Likert-type scale with endpoints labeled (1) definitely do not expect to meet partner and (10) definitely do expect to meet partner. This item allowed for a manipulation check of the trauma severity manipulation. The next 3 items asked participants to indicate how likable they felt each of the 3 personality types were. These items were answered on a 10-point, Likert-type scale with endpoints labeled (1) not at all likeable and (10) very likeable. The next item asked participants if they believed we have been truthful with them, using a 10-point, Likert-type scale with endpoints labeled (1) definitely not truthful and (10) definitely truthful. The last item asked participants if they found any aspect of the study disturbing, using a 10-point, Likert-type scale with endpoints labeled (1) definitely not disturbing and (10) definitely disturbing. This item provided space for participants to write comments indicating what specifically was disturbing about the study.

Additional Forms

The story form (Appendix H), peer’s story (Appendix I), peer evaluation form (Appendix J), personality feedback (Appendix K), demographic questionnaire (Appendix M), and the debriefing form (Appendix O), are all the same as used in the preliminary study.

Procedure

The procedure for the main study began the same as did the procedure for the preliminary study. Undergraduates arrived at the research room individually and were greeted by an experimenter. They were provided with a copy of the informed consent form. The form was read aloud by the experimenter, who ensured that the student was following along as it was read aloud
and appeared to understand the information provided. Once students agreed to participate, they signed the informed consent form.

All participants were informed that the purpose of the study was to explore the nature of initial impression formation. They were told that the goals of the study were to examine how people with different personalities judge each other and, secondly, to explore the emotional component of giving and receiving informal personality feedback.

All participants were told that they would be provided with detailed descriptions of 3 personality types and that, based on these descriptions, they would be asked to determine which personality type best describes them. They were also informed that another participant (a peer) was already seated in a nearby research room with another experimenter, and that they and the peer would each write a short autobiographical story for the other to read. They were also told that each will use the story to classify the other as 1 of 3 personality types, and that each would be informed about how he/she had been evaluated. However, in reality, there was no peer, and the experiment was rigged so that each participant would receive negative personality feedback (i.e., they will be classified as Type C). All participants were also told that, afterwards, they would be asked fill out a brief questionnaire about their experience in the study.

After the informed consent process was complete, participants assigned to the minor trauma condition were told, “You will not meet the other participant at any point in the study.” In contrast, participants assigned to the moderate trauma condition were told, “At the conclusion of the study, you and the other participant will have a brief meeting to openly discuss your thoughts and feelings about the study.”

At this point, the procedure for this main study departs from that of the preliminary study. Participants in both trauma severity conditions (minor and moderate) were also randomly
assigned to 1 of 3 prediction information conditions (simulation information only, surrogation information only, or both types of information).

Participants in all 6 experimental conditions were given an affective forecasting form, which asked them to predict how they would feel approximately 10 minutes after the other participant has classified them as each of the 3 personality types. These predictions were made on a 10-point, Likert-type scale, with endpoints labeled very unhappy and very happy. The predicted affective rating participants made for the Type C personality constituted their affective forecast.

Participants in the simulation information only conditions were provided with the personality descriptions before making their affective forecasts. They were instructed to carefully read and review each personality description. Next, they were given the affective forecasting form and were asked to make their predictions. They were informed that they may use the personality descriptions to assist them in making these predictions. It should be noted that these participants did not receive the surrogation information at any point in the study.

The personality descriptions provide complete and accurate information about the upcoming event (i.e., being classified as the Type C personality) that allowed these participants to engage in mental simulation when making their predictions.

In contrast, participants in the surrogation information only conditions were not provided with the personality descriptions until after they made their affective forecasts. Instead, these participants were provided with the affective forecasting form, along with the affective report of a previous participant (i.e., the surrogation information). The number circled on this completed affective report form corresponded to the mean affective report rating of the participants in the preliminary study.
At the time these participants were provided with the affective forecasting form, the experimenter acknowledged the fact that they had not yet been provided with the personality descriptions and provided them with the affective report of a previous participant (i.e., the surrogation information). They were told that this affective report form has been randomly selected from a small group of previous participants, and that it was completed by a previous participant approximately 10 minutes after he or she was classified as the Type C personality. They were also informed that they may use this information to assist them in making their predictions.

Because these participants did not have information about the personality types, they did not have the information necessary to rely on mental simulation when predicting their emotional response to the future event (i.e., receiving negative personality feedback). Rather, they were basically forced to rely on the affective report of a previous participant. That is, they had to rely on the surrogation method when making their affective forecasts. After they completed the affective forecasting form, these participants were provided with the personality descriptions.

Participants in the both types of information conditions were provided with the personality descriptions before they were given the affective forecasting form. After they reviewed the personality descriptions, they were provided with the affective forecasting form and the affective report of a previous participant (i.e., surrogation information). They were told that this affective report form was randomly selected from a small group of previous participants, and that it was completed by a previous participant approximately 10 minutes after he or she was classified as the Type C personality. These participants were informed that they may use the personality descriptions and/or the affective report of a previous participant to assist them in making their predictions.
At this point in the procedure, all participants had made their affective forecasts and had been provided with the personality descriptions. All participants had the personality descriptions available to them throughout the remainder of the study. The only difference among the prediction information conditions was the type of information they were provided with prior to making their affective forecasts. At this point, the procedure of the main study realigned with the procedure of the preliminary study and was the same for all participants.

Participants were then provided with a self evaluation form. They indicated how well each personality type described them and selected the personality type that best described them. Next, they were provided with the story form. With the use of a timer, participants were given next 5 minutes to write a brief story about themselves, providing information that might be helpful in determining their personality type. Participants, who were still working on their story when 5 minutes had elapsed, were instructed to finish the sentence they were working on and then stop. Once completed, the experimenter took the participant’s story and left the room, ostensibly to exchange it with the alleged peer’s story.

The experimenter returned approximately 1 minute later and gave participants the peer’s story and a peer evaluation form. Participants were instructed to spend a few minutes reading and reviewing the peer’s story before completing the peer evaluation form. They were also reminded that they may consult the personality descriptions provided earlier to assist in their evaluation. Participants selected the personality type that they felt best described the peer and rated their level of confidence in the accuracy of this classification. Once completed, the experimenter took the peer evaluation form and again left the room, ostensibly to exchange it with the peer’s evaluation of their personality.
The experimenter returned approximately 1 minute later and gave participants their personality feedback – another peer evaluation form that was filled out by hand (ostensibly by the peer in the other room). The form indicated that the participant was classified as the Type C personality and that the classification was made with relatively high confidence. That is, the form indicated a confidence rating of 8 on a scale ranging from (1) not at all confident to (10) extremely confident. At this point, after participants received the personality feedback, the experimenter again left the room, ostensibly to go make photocopies of the remaining research materials.

The experimenter returned 10 minutes later, apologized for the delay, and provided participants with an affective report form. The participants rated their current affective state, by marking a 10 point scale, ranging from (1) very unhappy to (10) very happy. This rating constituted their affective report.

Participants were then given the demographic questionnaire and provided information about their age, gender, race/ethnicity, etc. Next, participants completed the research participation questionnaire. Finally, participants were provided with the debriefing form. The experimenter reviewed the debriefing form with the participants and responded to any questions asked. The participants were then thanked for their participation and dismissed.

Results

Descriptive Statistics

All 3 dependent variables (affective forecasts, affective reports, and forecasting errors) were examined for minimum, maximum, mean, standard deviation. These variables were also
examined for kurtosis, skew, and modality using frequency distributions to determine if any transformations need to be made. These statistics are shown in Table 1.

To test for distributional characteristics, the ratio of skewness to its standard error and kurtosis to its standard error were calculated, as they distribute as a z-score. These were then compared to \(+ or \(- 1.97, which is a significant z-score. The only one of these calculated variables that reached significances was the ratio of forecasting error kurtosis to its standard error, which was 2.79. Although significant, this relatively small peakedness was not thought to be problematic.

Table 1

<table>
<thead>
<tr>
<th>Descriptive Statistics of Dependent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Affective Forecast</td>
</tr>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>Maximum</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Skewness (Std. Error)</td>
</tr>
<tr>
<td>Kurtosis (Std. Error)</td>
</tr>
</tbody>
</table>

*Manipulation Check*

To determine if the manipulation of trauma severity was effective, an independent-samples t test was conducted to test for a significant difference in the mean response to the
question “Do you expect to meet your partner?” for the 2 trauma severity conditions (minor vs. moderate). This question is the second item on the research participation questionnaire, shown in Appendix N. As expected, participants in the minor trauma severity condition generally did not expect to meet their partner ($M = 2.68, SD = 2.05$), whereas participants in the moderate trauma severity condition generally expected to meet their partner ($M = 6.67, SD = 2.50$), $t(118) = -9.55$, $p < .000$, $d = 1.75$. This provides evidence that the trauma severity manipulation was effective.

**Hypothesis Testing**

**Impact Bias**

The most pervasive finding in the affective forecasting literature is that people overestimate their emotional responses to future events, demonstrating an impact bias. For reviews of the impact bias, see Frederick & Loewenstein, 1999; Gilbert, Driver-Linn, et al., 2002; Loewenstein & Schkade, 1999; Wilson & Gilbert, 2003; Wilson & Gilbert, 2005). The impact bias is especially pronounced when predicting emotional responses to future negative events, such as receiving negative personality feedback (Gilbert, et al., 2004). Thus, it was expected that participants’ actual happiness ratings, provided 10 minutes after receiving the negative personality feedback, would be higher than what participants predicted. Hypothesis 1 stated that the affective reports of participants in both trauma conditions will be significantly higher than their affective forecasts.

To test this hypothesis, a repeated-measures $t$-test was conducted to compare the predicted happiness ratings (affective forecasts) of all participants against their actual happiness ratings (affective reports). In support of Hypothesis 1, results showed that participants’ affective reports ($M = 6.45, SD = 1.72$) were significantly higher than their affective forecasts ($M = 5.25$, $p < .000$, $d = 1.75$).
$SD = 1.68), \ t(119) = -6.12, \ p < .000, \ d = 0.71$. These results are consistent with previous research regarding the impact bias and suggest that people do tend to overestimate the emotional impact of future negative events.

This finding held when participants in each trauma condition were considered separately. The affective reports of participants in the minor trauma condition ($M = 6.18, SD = 1.63$) were significantly higher than their affective forecasts ($M = 5.43, SD = 1.56$), $t(59) = -3.04, p = .004, d = 0.47$. The affective reports of participants in the moderate trauma condition ($M = 6.72, SD = 1.78$) were also significantly higher than their affective forecasts than they predicted they would be ($M = 5.07, SD = 1.79$), $t(59) = -5.58, p < .000, d = 0.92$. Thus, participants demonstrated an impact bias, regardless of trauma severity condition, by overestimating the emotional impact of a future negative event (e.g., receiving negative personality feedback). Furthermore, the impact bias was significantly more pronounced for participants in the moderate (stronger) trauma condition than it was for those in the minor trauma condition.

Trauma Severity (Forecasting Errors)

To further examine the effect of the trauma severity manipulation on the accuracy of affective forecasts, an independent-samples $t$-test was conducted to compare the forecasting error scores of participants in the minor and moderate trauma conditions. There was a significant difference between the forecasting errors of participants in the minor trauma condition ($M = -.75$, $SD = 1.91$) and those in the moderate trauma condition ($M = -1.65, SD = 2.29$); $t(118) = 2.34, p = .02, d = .43$. The forecasting errors of participants in the moderate (stronger) trauma were significantly greater than the forecasting errors of those in the minor trauma condition. That is,
participants in the moderate (stronger) trauma severity condition were significantly less accurate in their predictions.

Trauma Severity (Affective Reports)

It was expected that the moderate trauma would be strong enough to trigger the psychological immune system, whereas the minor trauma would not. Activation of the psychological immune system should hasten emotional recovery. Thus, participants in moderate (stronger) trauma condition were expected to provide higher happiness ratings, 10 minutes after receiving the negative personality feedback, than participants in the minor trauma condition. Hypothesis 2 stated that the affective reports of participants in the moderate trauma condition will be significantly higher than the affective reports of participants in the minor trauma condition.

To test this hypothesis, an independent-samples $t$-test was conducted to compare the affective reports of participants in the minor and moderate trauma conditions. There was not a significant difference between the affective reports of participants in the minor trauma condition ($M = 6.18$, $SD = 1.63$) and those in the moderate trauma condition ($M = 6.72$, $SD = 1.78$); $t(118) = -1.71$, $p = .09$, $d = .32$.

These results show that there was not a statistically significant difference between the actual happiness ratings (affective reports) of participants in the 2 different trauma severity conditions (minor vs. moderate). Although not statistically significant, it should be noted that the trauma severity manipulation did produce a small effect ($d = .32$) in the expected direction of the stated hypothesis, with the actual happiness ratings of participants in the moderate (stronger)
trauma severity condition being somewhat higher than the happiness ratings of participants in the minor trauma severity condition.

Trauma Severity (Affective Forecasts)

It was also expected that participants would fail to account for affective adaptation when predicting their emotional responses. Therefore, participants would fail to distinguish between situations that tend to trigger (or not trigger) the immune system’s operations. Thus, it was expected, due to immune neglect, that participants in the moderate trauma condition would predict that they would be less happy, 10 minutes after receiving the negative personality feedback, than would participants in the minor trauma condition. Hypothesis 3 stated that the affective forecasts of participants in the moderate trauma condition will be significantly lower than the affective forecasts of participants in the minor trauma condition.

To test this hypothesis, an independent-samples $t$-test was conducted to compare the affective forecasts of participants in the minor and moderate trauma conditions. There was not a significant difference between the affective forecasts of participants in the minor trauma condition ($M = 5.43, SD = 1.56$) and those in the moderate trauma condition ($M = 5.07, SD = 1.79$); $t(118) = 1.20, p = .23, d = .21$. These results suggest that trauma severity manipulation does not have an effect on predicted happiness levels. Please see Table 2 for means and standard deviations for the 3 dependent measures by trauma severity condition.
Table 2

*Means and Standard Deviations for Dependent Measures by Trauma Severity Condition*

<table>
<thead>
<tr>
<th>Trauma Severity</th>
<th>Affective Forecasts&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Affective Reports&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Forecasting Errors&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Minor Trauma</td>
<td>60</td>
<td>5.43 (1.56)</td>
<td>6.18 (1.63)</td>
</tr>
<tr>
<td>Moderate Trauma</td>
<td>60</td>
<td>5.07 (1.79)</td>
<td>6.72 (1.78)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>120</td>
<td>5.25 (1.68)</td>
<td>6.45 (1.72)</td>
</tr>
</tbody>
</table>

<sup>a</sup> Rating scale from 1 = "Very Unhappy" to 10 = "Very Happy"

<sup>b</sup> As described in materials, Forecasting Error = Affective Forecast – Affective Report

Although there was not a significant difference between the affective forecasts of participants in the minor vs. moderate conditions, nor was there a significant difference between the affective reports of participants in the minor vs. moderate conditions, there was a significant difference between their forecasting error scores. The participants in the moderate (stronger) trauma condition were significantly less accurate when predicting their emotional response to receiving negative personality feedback.

Prediction Information

The second major aim of the current study was to determine if people more accurately predict their affective responses to receiving negative personality feedback when they knew how
another person responded to the same negative feedback. That is, this study sought to examine the utility of surrogation for improving affective forecasts. More specifically, the current study sought to determine if people would incorporate surrogation into their affective forecasts and make more accurate predictions when they had both surrogation and simulation available.

It was expected that participants would utilize surrogation information when making their predictions and thus improve their affective forecasts. However, it was also expected that the presence of simulation information will lessen the degree to which surrogation information was utilized. Therefore, the following three hypotheses were made.

Hypothesis 4 stated that the affective forecasts of participants in the surrogation information only condition will be significantly more accurate than the affective forecasts of participants in the simulation information only condition.

Hypothesis 5 stated that the affective forecasts of participants in the surrogation information only condition will also be significantly more accurate than the affective forecasts of participants in the both types of information condition.

Hypothesis 6 stated that the affective forecasts of participants in the both types of information condition will be significantly more accurate than the affective forecasts of participants in the simulation information only condition.

To test these three hypotheses about the accuracy of affective forecasts, a one-way ANOVA was conducted to test for differences in forecasting errors among the 3 prediction information conditions (simulation information only, surrogation information only, and both types of information). Results indicated that forecasting errors differed significantly across the three prediction information conditions, $F(2, 117) = 20.47, p < .000$, partial $\eta^2 = .26$. 
Follow-up analyses to the main effect for prediction information consisted of all pairwise comparisons among the 3 types of prediction information conditions (simulation information only, surrogation information only, and both types of information). The Tukey HSD procedure was used to control for Type I error across the pairwise comparisons.

The results of this post-hoc analysis indicated the forecasting error of participants in the surrogation information only condition \((M = .32, \ SD = 1.86)\) were significantly lower than the forecasting error of participants in the simulation only condition \((M = -2.15, \ SD = 1.79)\), \(p < .000, \ d = 1.35\). This finding provides support for Hypothesis 4 by demonstrating that the affective forecasts of participants in the surrogation information only condition were more accurate than the affective forecasts of participants in the simulation information only condition.

The results of this post-hoc analysis also indicated that the forecasting error of participants in the surrogation information only condition \((M = .32, \ SD = 1.86)\) were also significantly lower than the forecasting error of participants in the both types of information condition \((M = -1.78, \ SD = 1.94)\), \(p < .000, \ d = 1.11\). This finding provides support for Hypothesis 5 by demonstrating that the affective forecasts of participants in the surrogation information only condition were more accurate than the affective forecasts of participants in the both types of information condition.

However, the results of this post-hoc analysis showed there was no significant difference between the forecasting error scores of participants in the simulation information only condition \((M = -2.15, \ SD = 1.79)\) and the both types of information condition \((M = -1.78, \ SD = 1.94)\), \(p = .64, \ d = .20\). This finding does not support Hypothesis 6. The affective forecasts of participants in the both types of information only condition were not more accurate than the affective forecasts of participants in the simulation information condition.
Overall, analyses of forecasting error for the 3 prediction information conditions indicate superiority of the surrogation method in regard to improving the accuracy of affective forecasts and thereby reducing forecasting error. Please see Table 3 for means and standard deviations for the 3 dependent measures by prediction information condition.

Table 3

Means and Standard Deviations for Dependent Measures by Prediction Information Condition

<table>
<thead>
<tr>
<th>Prediction Information</th>
<th>Affective Forecasts&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Affective Reports&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Forecasting Errors&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Simulation Information</td>
<td>40</td>
<td>4.40 (1.69)</td>
<td>6.55 (1.63)</td>
</tr>
<tr>
<td>Surrogation Information</td>
<td>40</td>
<td>6.30 (1.24)</td>
<td>5.97 (1.70)</td>
</tr>
<tr>
<td>Both Types of Information</td>
<td>40</td>
<td>5.05 (1.52)</td>
<td>6.83 (1.75)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>120</td>
<td>5.25 (1.68)</td>
<td>6.45 (1.72)</td>
</tr>
</tbody>
</table>

<sup>a</sup> Rating scale from 1 = "Very Unhappy" to 10 = "Very Happy"

<sup>b</sup> As described in materials, Forecasting Error = Affective Forecast – Affective Report

Interaction between Trauma Severity and Prediction Information

The third major aim of this study was to determine if there is an interaction between trauma severity and the effectiveness of surrogation information for improving affective
forecasts. This is the first study on the accuracy of affective forecasting to vary both the severity of trauma and the availability of simulation vs. surrogation information. The means and standard deviations for each of the dependent measures (affective forecasts, affective reports, and forecasting errors) for each of the 6 experimental conditions are presented in Table 4.

Table 4

*Means and Standard Deviations for Dependent Measures by Experimental Condition*

<table>
<thead>
<tr>
<th>Trauma Severity</th>
<th>Prediction Information</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Trauma</td>
<td>Simulation Information</td>
<td>4.45</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>Surrogation Information</td>
<td>6.20</td>
<td>1.20</td>
</tr>
<tr>
<td></td>
<td>Both Types of Information</td>
<td>5.65</td>
<td>1.46</td>
</tr>
<tr>
<td>Moderate Trauma</td>
<td>Simulation Information</td>
<td>4.35</td>
<td>1.90</td>
</tr>
<tr>
<td></td>
<td>Surrogation Information</td>
<td>6.40</td>
<td>1.31</td>
</tr>
<tr>
<td></td>
<td>Both Types of Information</td>
<td>4.45</td>
<td>1.36</td>
</tr>
</tbody>
</table>

Affective Forecastsa

| Minor Trauma    | Simulation Information       | 6.10    | 1.29 |
|                 | Surrogation Information      | 5.55    | 1.73 |
|                 | Both Types of Information    | 6.90    | 1.62 |
| Moderate Trauma | Simulation Information       | 7.00    | 1.84 |
|                 | Surrogation Information      | 6.40    | 1.60 |
|                 | Both Types of Information    | 6.75    | 1.92 |

Affective Reportsa

| Minor Trauma    | Simulation Information       | -1.65   | 1.23 |
|                 | Surrogation Information      | .65     | 1.98 |
|                 | Both Types of Information    | -1.25   | 1.65 |
| Moderate Trauma | Simulation Information       | -2.65   | 2.13 |
|                 | Surrogation Information      | .00     | 1.72 |
|                 | Both Types of Information    | -2.30   | 2.11 |

b As described in materials, Forecasting Error = Affective Forecast – Affective Report

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a Rating scale from 1 = "Very Unhappy" to 10 = "Very Happy"
Based on previous findings found in the affective forecasting literature (Gilbert et al., 2004; Gilbert, Killingsworth, et al., 2009; Gilbert, et al., 1998; Norwick et al., 2006; Walsh & Ayton, 2009a), it was expected that the participants in the moderate trauma, simulation information only condition would have the greatest affective forecasting error score. Specifically, Hypothesis 7 stated that the forecasting errors of participants in the moderate trauma, simulation information only condition will be significantly higher than the forecasting errors of participants in the other 5 experimental conditions.

To test this hypothesis, a 2 (Trauma Severity: moderate, minor) X 3 (Prediction Information: only surrogation, only simulation, both simulation and surrogation) factorial ANOVA was conducted for the dependent measure of forecasting error.

Results did not support this hypothesis. The ANOVA indicated there was no significant interaction effect between trauma severity and prediction information, $F(2, 114) = .14, p = .87$, partial $\eta^2 = .002$. The forecasting errors of participants in the moderate trauma, simulation information only condition did not differ significantly from the forecasting errors of participants in the other 5 experimental conditions.

However, results indicated there was a significant main effect for trauma severity $F(1, 114) = 7.26, p = .008$, partial $\eta^2 = .06$, and a significant main effect for prediction information, $F(2, 114) = 21.26, p < .001$, partial $\eta^2 = .27$.

Follow-up analyses to the main effect for trauma severity indicated that participants in the moderate (stronger) trauma condition tended to have greater forecasting error than participants in the minor trauma condition. This finding corroborates the aforementioned results of the $t$-test conducted to test the effects of the trauma severity manipulation on the accuracy of affective forecasts.
Follow-up analyses to the main effect for prediction information consisted of all pairwise comparisons among the 3 types of prediction information conditions (simulation information only, surrogation information only, and both types of information). The Tukey HSD procedure was used to control for Type I error across the pairwise comparisons. The results indicated the forecasting error of participants in the surrogation information only condition were significantly lower than the forecasting errors of participants in the simulation only condition and participants in the both types of information condition. There was no significant difference in forecasting error between participants in the simulation information only condition and the both types of information condition. These findings corroborate the aforementioned results of the one-way ANOVA conducted to test Hypotheses 4, 5, and 6.

Discussion

Impact Bias

The findings of this study add to the abundant evidence in the affective forecasting literature that people overestimate their emotional responses to future events, demonstrating an impact bias (Frederick & Loewenstein, 1999; Gilbert, Driver-Linn, et al., 2002; Loewenstein & Schkade, 1999; Wilson & Gilbert, 2003; Wilson & Gilbert, 2005). It was hypothesized that the actual happiness ratings (affective reports) of participants in both trauma conditions would be significantly higher than their predicted happiness ratings (affective forecasts). Results supported this prediction. The affective reports, provided by participants 10 minutes after receiving negative personality feedback, were significantly higher than their affective forecasts. Consistent with previous research (Gilbert et al, 2004; Gilbert et al., 1998), participants demonstrated an
impact bias, regardless of trauma severity condition, by overestimating the emotional impact of a future negative event (e.g., receiving negative personality feedback).

**Immune Neglect and the Relative Impact of Trauma Severity**

Further analyses showed that the impact bias was significantly more pronounced for participants in the moderate (stronger) trauma condition than it was for participants in the minor trauma condition. More specifically, the forecasting errors of participants in the moderate (stronger) trauma were significantly greater than the forecasting errors of those in the minor trauma condition. That is, participants in the moderate (stronger) trauma severity condition were significantly less accurate in their predictions.

This finding corroborates the findings of previous studies on immune neglect, conducted by Gilbert et al. (2004), which also demonstrated that the impact bias was more pronounced for more distressing experiences than less distressing experiences. This likely occurred due to immune neglect, which can lead to misjudgments about the relative impact of traumas of different severities (Gilbert et al, 2004). The psychological immune system, which basically turbo-charges the processes of affective adaptation, is triggered when distress meets or surpasses a critical threshold and hastens recovery from negative emotional experiences. One consequence of this is that people may paradoxically recover faster from a stronger distressing experience than from a milder distressing experience. Because people are not consciously aware of the workings of the psychological immune system, they do not account for it when making affective forecasts, and thus they may mistakenly expect a more intense negative emotional state to last longer than a milder one.

Presumably, the moderate (stronger) trauma in this study was strong enough to trigger the
psychological immune system, whereas the minor trauma was not. Activation of the psychological immune system hastened emotional recovery from the moderate trauma, but not from the minor trauma. However, due to immune neglect, participants did not take this into consideration when making their predictions, which led participants in the moderate trauma severity condition to have greater forecasting error than participants in the minor trauma severity condition.

It was also hypothesized that the actual happiness ratings (affective reports) of participants in the moderate (stronger) trauma condition would be significantly higher than those of participants in the minor trauma condition. That is, it was expected that participants in the stronger trauma condition would, paradoxically, be happier than participants in the minor trauma condition, 10 minutes after receiving negative personality feedback. However, results did not support this hypothesis. There was not a statistically significant difference between the actual happiness ratings of participants in the 2 different trauma severity conditions. Although not statistically significant, the difference found was in the expected direction, with the actual happiness ratings of participants in the moderate (stronger) trauma severity condition being somewhat higher than the happiness ratings of participants in the minor trauma severity condition.

In addition, it was hypothesized that the predicted happiness ratings (affective forecasts) of participants in the moderate (stronger) would be significantly lower than those of participants in the minor trauma condition. That is, it was expected that participants in the stronger trauma condition would predict that they would be less happy than participants in the minor trauma condition. Again, however, results did not support this hypothesis. There was not a significant
difference between the predicted happiness ratings of participants in the 2 different trauma severity conditions.

Although there was not a significant difference between the predicted happiness ratings (affective forecasts) nor the actual happiness ratings (affective reports) of participants in the minor vs. moderate conditions, there was, however, a significant difference between their forecasting error scores. The participants in the moderate (stronger) trauma condition were significantly less accurate when predicting their emotional response to receiving negative personality feedback. This is somewhat surprising, given that the forecasting error scores are based on the difference between affective forecasts and affective reports. It may be that the trauma manipulation in this study was relatively weak. Strong enough to create a significant discrepancy in forecasting errors, but not strong enough to create a significant discrepancy between affective forecasts and affective reports. This is a limitation of this study and future studies should use a stronger trauma manipulation to provide insight into this finding. One way to strengthen the trauma manipulation would be to include a more negative personality description.

Outside of the laboratory, misjudgments about the relative impact of trauma severity, due to immune neglect, can take the many forms that lead to the same sort of paradoxical outcomes (Gilbert et al., 2004). For example, drivers may believe the amount of time they spend on the road is directly proportionate to their risk of being in a car collision. Thus, a long road trip may be perceived as threatening enough to trigger precautionary behaviors (e.g. wearing seatbelts); whereas a short trip does not. If drivers decide to buckle for trips across state lines but neglect to wear seatbelts when making quick trips to the convenience store, people may paradoxically be more likely to be injured in a car accident when they are taking short rather than long trips.
Similarly, partygoers may believe their blood alcohol levels are directly proportionate to their risk of causing a car accident on the way home or their risk of being arrested for drunk driving. If a partygoer who becomes highly inebriated triggers preventative measures (e.g. hiding car keys, calling a cab), but partygoers who are only tipsy are overlooked, people may paradoxically be more likely to cause an accident and/or be arrested after drinking two glasses of merlot than after drinking a fifth of scotch.

Research by Trope and Fishbach (2000) provides another behavioral example of this phenomenon. They showed that people believe they are more likely to back out of medical procedures that are expected to be very painful than medical procedures expected to be slightly painful. Due to this belief, people scheduled for very painful medical procedures tend to utilize counteractive self-control strategies (e.g., make explicit commitment with others, agree to pay large cancellation fees). Whereas, people scheduled for slightly painful medical procedures are not concerned about backing out and thus are not likely to employ counteractive self-control strategies. The paradoxical consequence is that people are more likely to chicken out of a slightly painful medical procedures than those that are very painful. These examples demonstrate how common this paradox is in everyday life and provide illustrations of the potential consequences of neglecting the complex workings of the psychological immune system.

The Utility of Surrogation for Improving Affective Forecasts

The current study joins existing studies in the literature, by demonstrating that surrogation is an effective method that leads to strikingly accurate affective forecasts, when participants are deprived of simulation information – that is, when participants are not given information about the upcoming event that will enable them to use their imaginations (Gilbert,
Killingsworth, et al., 2009; Norwick et al., 2006; Walsh & Ayton, 2009a). It was hypothesized that the predicted happiness ratings (affective forecasts) of participants provided with surrogation information only would be significantly more accurate than the affective forecasts of participants who were provided with simulation information only. This is precisely what was found. Participants who had to rely on the affective report of another person (surrogation information only) were much more accurate in their predictions than participants who had to rely on their own imaginations to predict how they would feel (simulation information only).

This study also corroborates the findings of other studies which have shown that people prefer simulation over surrogation information and would rather rely on their imaginations than the reported feelings of someone else, when given the choice (Gilbert, Killingsworth, et al., 2009; Norwick et al., 2006; Walsh & Ayton, 2009a). It was hypothesized that the predicted happiness ratings (affective forecasts) of participants provided with surrogation information only would also be significantly more accurate than the affective forecasts of participants who were provided with both surrogation and simulation information. Results supported this hypothesis. Participants who had to rely on the affective report of another person were much more accurate in their predictions than participants who also had the option of using their own imaginations to predict how they would feel.

In fact, the findings of this study indicate that people not only prefer simulation information, but when given the option, they completely devalue and/or ignore the value of surrogation information. It was expected that the presence of simulation information would lessen the degree to which surrogation information was utilized, however, based on a the findings of a previous study (Walsh & Ayton, 2009a), participants were expected to incorporate the surrogation information into their affective forecasts enough to make them significantly more
accurate than participants who had only their own imaginations to rely on. It was hypothesized that the predicted happiness ratings (affective forecasts) of participants provided with both surrogation and simulation would be significantly more accurate than the affective forecasts of participants who were provided with simulation information only. Results failed to support this hypothesis. Participants who had the option of utilizing the affective report of another person were no more accurate in their predictions than participants who had no choice but to rely solely on the use of their own imaginations to predict how they would feel. That is, participants who had both surrogation and simulation available, completely discounted the value of knowing how someone else felt and choose to focus solely on their own imaginations, resulting in less accurate predictions.

This finding is in contrast to the findings by Walsh and Ayton (2009a), who found that people do integrate surrogation information into their predictions, making more accurate affective forecasts, when they have both surrogation and simulation information available, as opposed to having simulation information only. One reason for this discrepancy is the nature of the event participants were asked to make affective forecasts about. In the study by Walsh and Ayton, participants were asked to imagine that they had been diagnosed with kidney disease and were then asked to predict what their level of happiness would be one year after living with this chronic health condition.

However, both studies indicate that surrogation is not exactly an antidote for affective forecasting errors, as people are reluctant to use surrogation and, when given the choice, prefer to rely on their imaginations (i.e. mental simulation). Withholding information about a future event (information that is required for mental simulation) is far from feasible in real life and there are rarely situations in which people make affective forecasts in the absence of simulation.
information. Future studies should examine whether the utilization of surrogation information could be enhanced by educating people about the value of this information. The surrogation method could be an effective antidote for affective forecasts errors if people could be persuaded that other people's feelings can guide them to their own happiness.

As discussed in introduction, it is possible that people disregard surrogation information because they view themselves as unique and distinct from others. Future studies should explore this further by examining whether surrogation information from others, perceived as similar to oneself, increases the utilization of that information. It is plausible that participants might be more likely to incorporate surrogation information into their affective forecasts if they believe they are more similar person who provided the surrogation information.

Affective forecasts are the basis for many life decisions and, consequently, many decisions may be less than optimal because affective forecast are flawed (Sedalis & Harvey, 2007). Progress has been made in regard to developing methods for improving affective forecasts, however, the findings of this study indicate that more research is necessary to determine how to maximize the potential of surrogation. However, therapists should educate clients about affective forecasting errors and encourage them to obtain objective information about the likely emotional impact of actualizing their goals. When clients are contemplating what they want out of life and are generating their future goals, therapists can remind them about the pitfalls of the impact bias. Rather than imagining how they might feel, they would be better informed by interviewing another person who has actually experienced the event in question.

Additional Limitations of Current Study and Suggestions for Future Studies

Several additional limitations of this study can be noted and suggest future directions for
further research. Foremost, additional evidence is needed to characterize the generalizability of the results, as the current study examined affective forecasting for a single event (i.e., receiving negative personality feedback), in an experimental setting and the observed effects were obtained from a university sample. Another limitation of this study is that participants only made one post-event affect rating. Future researchers may want to obtain affect ratings at multiple points in time to more fully demonstrate the effects of affective adaptation and the time it takes to return to an emotional baseline.

In addition, future researchers should explore the question of whether the impact bias is advantageous in some way. It may be that overestimating the emotional impact of a negative event provides an increase in motivation, leading people do the hard work necessary to obtain the pleasure of positive outcomes and avoid the pain of negative outcomes (Norem, 2001; Wilson & Gilbert, 2003).
APPENDIX A

INFORMED CONSENT FORM
Impression Formation: Initial Evaluations of Others’ Personalities

Before agreeing to participate in this research study, it is important that you read and understand some important information about the study, including the requirements of participation, as well as, the benefits and potential risks of participation.

The purpose of this study is to explore the nature of initial impression formation. The primary goal of this study is to examine how people with different personalities judge each other. A secondary goal of this study is to explore the emotional component of giving and receiving informal personality feedback. The results of this study will contribute to the existing body of research on impression formation and will be used to help guide further theoretical development.

You will be provided with detailed descriptions of 3 personality types. Based on these descriptions, you will be asked to determine which personality type best describes you. Later in the study, you and another participant will be asked to evaluate each other’s personality.

You will be paired with another participant, who is currently in a nearby research room with another experimenter. Each of you will be asked to write a short autobiographical story for the other to read. After these stories are written, they will be exchanged by the experimenters. Your story will be given to the participant in the other room and you will be given the other participant’s story. You will then be asked to evaluate the other participant’s story and use it to classify him or her as 1 of the 3 personality types. At the same time, the other participant will be asked to evaluate your story and use it to classify you as 1 of the 3 personality types. Once the evaluation forms are complete, they will be exchanged by the experimenters. Your evaluation of the other participant’s personality will be given to the other participant and you will be given the other participant’s evaluation of your personality.

Afterwards, you will be asked to fill out a brief questionnaire about your experience in the study. We ask that you be as honest as possible in all of your responses.
The total time of participation is approximately 45 minutes. For compensation, you will receive 2 research participation credits via the UNT SONA System. Potential risks to you as a participant may include some emotional discomfort and loss of confidentiality. You may choose to discuss any emotional discomfort with the research or end your participation at any time. A phone number to obtain counseling services is available upon request. Your confidentiality will be protected by using code numbers on all materials. Please write your name on this form only. This form will be kept in a separate locked confidential file from your coded response forms. The confidentiality of your individual information will be maintained in any publications or presentations regarding this study. Results will be reported primarily as average patterns and any individual responses will not identify you personally.

If you have any questions or concerns about the study, you may contact the principal investigator or the graduate student investigator:

   Principal Investigator: Russell Clark, Ph.D.

   Graduate Student Investigator: Summer Burkman, M.S.

By signing below, you indicate that you have read and understand all of the above. Your signature indicates that your participation is voluntary. Your choice not to participate or decision to stop participation at any time will not affect any benefit to which you are otherwise entitled.

________________________________       ________________________________       ________________
   Name of participant (printed)         Signature of Participant              Date

________________________________    ________________
   Signature of Researcher              Date

This research has been reviewed and approved by the UNT Institutional Review Board (IRB).

The UNT IRB can be contacted at (940) 565-3940 with any questions regarding your rights as a research participant.
APPENDIX B

PERSONALITY DESCRIPTIONS (SIMULATION INFORMATION)
Personality Descriptions

Please take the next few minutes to carefully read and review the descriptions of the 3 personality types.

**Type A personality**

In addition to being extraordinarily well-rounded, these people have exceptional qualities that often lead others to refer to them as gifted. Although these people generally get along well with others, they occasionally find themselves bored by those who do not share their gifts. These people are rarely resented for their obvious superiority; others usually admire them. These people tend to excel in professional occupations that require exceptional creativity or analytical thinking. They are rather selective in their relationships, but the few they foster tend to be lifelong. Their romantic relationships also tend to endure. Divorce rates are below the national average in this group. When long-term relationships end it is almost always because these people have found a more suitable and rewarding alternative. These people tend to have a realistic picture of their own talents, though they occasionally underestimate themselves and may be capable of even greater achievements than they realize.

**Type B personality**

These people are particularly competent and well-adjusted and, although they are average in many respects, they almost always have one or more remarkable qualities such as an artistic or athletic talent, high intelligence, or good social skills. These people generally get along well with others and tend to be put in leadership positions, though occasionally others may feel jealous or threatened by them. They tend to be successful in a wide variety of careers, but especially in
professional occupations that require special skills and high levels of dedication. They seek both fulfillment and excitement in their personal relationships, and their romantic relationships are usually successful as long as they are with partners who do not share their remarkable quality. Divorce rates tend to be below the national average in this group, and when long-term relationships do end it is usually by mutual consent. On some occasions, these people overestimate their own ability and may take on more than they can handle, but they tend to deal with stress well and tend not to repeat the same mistake twice.

**Type C personality**

These people are fairly competent and well-adjusted but have few qualities that distinguish them from others. They are generally well-liked, partly because they do not pose a threat to the competencies of others. These people tend to succeed in a wide variety of careers but, because of their ability to get along well with others, mostly excel in jobs requiring them to be part of a team rather than take on individual responsibilities. In their personal relationships, they will sacrifice their beliefs because they seek contentment rather than challenge or excitement. Their romantic relationships are fairly successful as long as they are with a person of the same type. Divorce rates do not differ substantially from the national average in this group and when long-term relationships end it is usually because the person’s partner has found a more suitable alternative. These people tend to have a realistic picture of both their talents and their limitations and thus tend to structure their tasks quite appropriately.
APPENDIX C

AFFECTIVE REPORT OF A PREVIOUS PARTICIPANT

(SURROGATION INFORMATION)
Affective Report Form

ID # 18

Please answer the following question.
Please circle one number only.

How do you feel at this current moment?

1  2  3  4  5  6  7  8  9  10

Very Unhappy

Very Happy

Personality Classification = Type C
APPENDIX D

AFFECTIVE FORECASTING FORM

(SIMULATION INFORMATION ONLY CONDITIONS)
Affective Forecasting Form

ID #________

On this form, we ask you to predict how you think you would feel approximately 10 minutes after the other participant has classified you as each of the 3 personality types: Type A, Type B, and Type C.

For each prediction, please circle a single number on the 10-point scale provided. The number 1 means you expect to feel very unhappy and 10 means you expect to feel very happy.

If you would like, you may use the personality descriptions to assist you in making your predictions.

How do you think you would feel approximately 10 minutes after being classified as Type A?

1 2 3 4 5 6 7 8 9 10

Very Unhappy

Very Happy

How do you think you would feel approximately 10 minutes after being classified as Type B?

1 2 3 4 5 6 7 8 9 10

Very Unhappy

Very Happy

How do you think you would feel approximately 10 minutes after being classified as Type C?

1 2 3 4 5 6 7 8 9 10

Very Unhappy

Very Happy
APPENDIX E

AFFECTIVE FORECASTING FORM

(SURROGATION INFORMATION ONLY CONDITIONS)
Affective Forecasting Form

On this form, we ask you to predict how you think you would feel approximately 10 minutes after the other participant has classified you as each of the 3 personality types: Type A, Type B, and Type C.

For each prediction, please circle a single number on the 10-point scale provided. The number 1 means you expect to feel very unhappy and 10 means you expect to feel very happy.

Although you have not yet been provided with descriptions of the three personality types, you will be provided with the affective rating of a previous participant.

This affective report form has been randomly selected from a small group of previous participants. It was completed by one of these previous participants approximately 10 minutes after receiving his or her personality classification.

If you would like, you may use it to assist you in making your predictions.

How do you think you would feel approximately 10 minutes after being classified as Type A?

1 2 3 4 5 6 7 8 9 10

Very Unhappy  Very Happy

How do you think you would feel approximately 10 minutes after being classified as Type B?

1 2 3 4 5 6 7 8 9 10

Very Unhappy  Very Happy

How do you think you would feel approximately 10 minutes after being classified as Type C?

1 2 3 4 5 6 7 8 9 10

Very Unhappy  Very Happy
APPENDIX F

AFFECTIVE FORECASTING FORM (BOTH TYPES OF INFORMATION CONDITIONS)
Affective Forecasting Form

On this form, we ask you to predict how you think you would feel approximately 10 minutes after the other participant has classified you as each of the 3 personality types: Type A, Type B, and Type C.

For each prediction, please circle a single number on the 10-point scale provided. The number 1 means you expect to feel *very unhappy* and 10 means you expect to feel *very happy*.

If you would like, you may use the personality descriptions to assist you in making your predictions.

You will also be provided with the affective rating of a previous participant.

This affective report form has been randomly selected from a small group of previous participants. It was completed by one of these previous participants approximately 10 minutes after receiving his or her personality classification.

If you would like, you may use it to assist you in making your predictions.

How do you think you would feel approximately 10 minutes after being classified as Type A?

1 2 3 4 5 6 7 8 9 10

*Very Unhappy*                      *Very Happy*

How do you think you would feel approximately 10 minutes after being classified as Type B?

1 2 3 4 5 6 7 8 9 10

*Very Unhappy*                      *Very Happy*

How do you think you would feel approximately 10 minutes after being classified as Type C?

1 2 3 4 5 6 7 8 9 10

*Very Unhappy*                      *Very Happy*
APPENDIX G

SELF EVALUATION Form
Self Evaluation Form

Based on the personality descriptions provided, please answer the following 4 questions by circling a single number.

How well does the Type A personality describe you?

1 2 3 4 5 6 7 8 9 10
Not at all Very Well

How well does the Type B personality describe you?

1 2 3 4 5 6 7 8 9 10
Not at all Very Well

How well does the Type C personality describe you?

1 2 3 4 5 6 7 8 9 10
Not at all Very Well

Of the 3 personality types, which best describes you?
(Please check one)

Type A: _____
Type B: _____
Type C: _____
APPENDIX H

STORY FORM
Please take the next 5 minutes to write a brief story about yourself. You may provide any information that might be helpful in determining your personality type. Just write whatever comes to mind. Please write clearly.
APPENDIX I

PEER'S STORY
I am a full-time college student and I work part-time at a coffee shop. This is my first year of college— I'm not sure what my major will be yet. I eventually want a job that will allow me to be creative. I definitely do not want to sit behind a desk all day long. I try to take my education seriously and I make pretty good grades. Someday, I would like to get married and have a couple of kids. Ideally, we would live in a house by the ocean.

I am close with my family and I have lots of friends. People tell me that I am outgoing and friendly. I always try to keep a positive attitude, even when things go wrong. I like hanging out with my friends, watching movies, surfing the web, and listening to music.
APPENDIX J

PEER EVALUATION FORM
Peer Evaluation Form

ID # ________

Please spend a few minutes reading and reviewing the other participant’s story before completing this evaluation form. If you would like, you may review the descriptions of the 3 personality types to assist in your evaluation.

ID # of participant being evaluated: ________

Of the 3 personality types, which best describes the participant you are evaluating?

(Please check one type only)

Type A: _____
Type B: _____
Type C: _____

How confident are you in the accuracy of your evaluation?

(Please circle one number only)

1 2 3 4 5 6 7 8 9 10

Not At All Extremely
Confident Confident
Peer Evaluation Form

ID # 29

Please spend a few minutes reading and reviewing the other participant’s story before completing this evaluation form. If you would like, you may review the descriptions of the 3 personality types to assist in your evaluation.

ID # of participant being evaluated: 30

Of the 3 personality types, which best describes the participant you are evaluating?
(Please check one type only)

Type “A”:

Type “B”:

Type “C”:

How confident are you in the accuracy of your evaluation?
(Please circle one number only)

1 2 3 4 5 6 7 8 9 10

Not At All Confident

Extremely Confident
APPENDIX L

AFFECTIVE REPORT FORM
Affective Report Form

ID # __________

Please answer the following question.
Please circle one number only.

How do you feel at this current moment?

1  2  3  4  5  6  7  8  9  10

Very Unhappy  Very Happy

Very Unhappy  Very Happy
APPENDIX M

DEMOGRAPHIC QUESTIONNAIRE
Demographic Questionnaire

ID # ________

Please answer each of the following questions by checking a single response option or writing in your answer.

1. Gender: _____ Male _____ Female

2. Years of age: _____

3. In which group do you mostly place yourself? (please check one category only)

_____ European American/White _____ American Indian/Alaskan Native
_____ African-American/Black _____ Asian/Pacific Islander
_____ Hispanic/Latino(a) _____ Other ______________________

4. What is your current marital status?

_____ Single (never married) _____ Separated
_____ In a committed relationship _____ Divorced
_____ Married _____ Widowed

5. Do you have any children? _____ No _____ Yes

   If Yes, How many children? _____

6. Current education status: _____ Part time student _____ Full time student

7. Current employment status:

_____ 1) Employed full time _____ 3) Self-employed
_____ 2) Employed part-time _____ 4) Unemployed
   (25 hours or fewer per week)
APPENDIX N

RESEARCH PARTICIPATION QUESTIONNAIRE
Research Participation Questionnaire

For each question, please circle one number only.

Were you upset when you first received your personality feedback?

1 2 3 4 5 6 7 8 9 10
Definitely
Not Upset

Do you expect to meet your partner?

1 2 3 4 5 6 7 8 9 10
Definitely
Do Not Expect
To Meet Partner

How likeable is the Type A personality?

1 2 3 4 5 6 7 8 9 10
Not At All
Likeable

How likeable is the Type B personality?

1 2 3 4 5 6 7 8 9 10
Not At All
Likeable

How likeable is the Type C personality?

1 2 3 4 5 6 7 8 9 10
Not At All
Likeable

Do you believe we have been truthful with you?

1 2 3 4 5 6 7 8 9 10
Definitely
Not Truthful

Did you find any aspect of the study disturbing?

1 2 3 4 5 6 7 8 9 10
Definitely
Not Disturbing

If you answered 6, 7, 8, 9, or 10, please indicate what you found disturbing about the study:

___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
APPENDIX O

DEBRIEFING FORM
Studies of affective forecasting examine people’s ability to predict their emotional responses to future events (for an overview, see Wilson & Gilbert, 2005). Affective forecasting underlies nearly all decisions that people make and the actions they take. However, people engage in systematic errors when making affective forecasts and tend to overestimate the intensity and duration of their emotional responses.

The current study has 2 major purposes. The first purpose is to determine if participants accurately predict how they will feel after they experience a negative event (such as, receiving somewhat negative personality feedback from a research partner). The second purpose is to determine if knowing how someone else felt in the same situation helps participants to make more accurate predictions.

It is hypothesized that participants will significantly overestimate the emotional impact of receiving somewhat negative personality feedback. It is also hypothesized that knowing how someone else felt in the same situation (that is, having surrogation information) will help participants make more accurate affective forecasts.

Understanding the mechanisms that underlie affective forecasting errors and examining the utility of methods for improving these errors can potentially provide highly valuable information for clinicians as they assist clients in determining their goals for therapy and for life.

At the beginning of the study you were provided with a fake title of the study and a somewhat misleading description of the study’s purpose. We did this so participants would not be concerned about accuracy when making their affective forecasts.

You were also informed that another participant would be acting as your partner throughout the study (giving and receiving personality feedback). In fact, there was no other participant. The materials provided to you were completed prior to the study by the investigator. I want to make it clear that your personality was not actually evaluated and will not be evaluated as part of this study.

I would like to remind you the data obtained in this study is confidential and that all results will be published anonymously as group data. However, please let us know if you would like to withdraw your data from this study, now that you have information about the true research purpose.

If you are interested in learning more about the topic of this study, the following articles are recommended and can be obtained through the UNT Library system:


If you experience uncomfortable emotions or any psychological distress following your participation in this study - or for any reason - the following resources are available to you. Note: UNT students are entitled to 8 free counseling sessions per academic year at the Student Counseling Center.

- Student Counseling Center
  - Location: UNT, Chestnut Hall, Suite 311
  - Phone: (940) 565-2741
  - Web: www.unt.edu/cat
- UNT Psychology Clinic
  - Location: UNT, Terrill Hall, Room 171
  - Phone: (940) 565-2631
  - Web: www.psyc.unt.edu/clinic

If you have any concerns or questions about this research, or if you would like information about the results of the study once it is completed, please contact the Graduate Student Investigator, Summer Burkman, M.S. You may also contact the Faculty Supervisor and Principal Investigator of this study, Dr. Russell Clark III. The UNT IRB can be contacted at (940) 565-3940 with any questions regarding your rights as a research participant.

Please do not talk about the true purpose of this study with other students who may be future participants in the study. Thank you very much for helping us with this research.
REFERENCES


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