

# **Interpersonal Affective Forecasting**

**Janice L. Sanchez**

**Brasenose College**



**Thesis submitted for the degree of Doctor of Philosophy**

**Department of Experimental Psychology**

**University of Oxford**

**October, 2013**

## Contents

Acknowledgments .....	vii
List of Figures.....	vii
Abstract.....	viii
Detailed Abstract .....	ix
Chapter 1 .....	1
Theoretical Background and Study Summaries .....	1
1.0 Abstract.....	1
1.1 Affective Forecasting and Impact Bias .....	1
1.2 Interpersonal/Empathic Affective Forecasting.....	5
1.3 Self-Other Differences.....	9
1.4 Immune Neglect and Focalism .....	14
1.5 Implicit Theories of Emotion .....	17
1.6 Belief Perseverance and Information Source .....	18
1.7 Biased Recall .....	21
1.8 Summary of Studies Conducted .....	22
Chapter 2 .....	26
Study 1: The Influence of Implicit Theories of Emotion on Impact Bias .....	26
2.0 Abstract.....	26
2.1 Introduction .....	26
2.2 Method.....	39
2.2.1 Participants .....	39
2.2.2 Design.....	40
2.2.3 Measures.....	40
2.2.4 Procedure and Materials .....	42
2.3 Results .....	44
2.3.1 Measure Composites .....	44
2.3.2 Manipulation Checks.....	44
2.3.2.1 Implicit Theories of Emotion .....	44
2.3.2.2 Effect of RAT Test Feedback on Reported Affect.....	45

2.3.3 Forecast Bias .....	46
2.3.3.1 Predictions and Experiences .....	46
2.3.4 Prediction recall .....	52
2.4 Discussion .....	53
Chapter 3 .....	60
Study 2: Effects of Event Timing on Impact Bias and Prediction Recall .....	60
3.0 Abstract .....	60
3.1 Introduction .....	61
3.2 Method .....	64
3.2.1 Participants .....	64
3.2.2 Design .....	64
3.2.3 Measures .....	65
3.2.4 Procedure and Materials .....	66
3.3 Results .....	68
3.3.1 Measures .....	68
3.3.2 Manipulation Check .....	68
3.3.3 Forecast Bias .....	69
3.3.3.1 Predictions and Experiences .....	69
3.3.4 Prediction Recall .....	69
3.3.4.1 Predictions and Recalled Predictions .....	69
3.3.4.2 Correlation analysis .....	73
3.4 Discussion .....	74
Chapter 4 .....	81
Study 3: The Influence of Prior Knowledge about Impact Bias .....	81
4.0 Abstract .....	81
4.1 Introduction .....	81
4.2 Method .....	87
4.2.1 Participants .....	87
4.2.2 Design .....	87

4.2.3 Procedure .....	88
4.2.4 Measures .....	88
4.3 Results .....	89
4.3.1 Predictions .....	89
4.3.2 Effect of Time on Predictions.....	90
4.4 Discussion.....	91
Chapter 5 .....	95
Study 4: The Influence of Specific and General Information about Impact Bias .....	95
5.0 Abstract.....	95
5.1 Introduction .....	95
5.2 Method.....	98
5.2.1 Participants .....	98
5.2.2 Design.....	99
5.2.3 Procedure and Measures.....	99
5.3 Results .....	101
5.4 Discussion.....	102
Chapter 6 .....	105
Study 5: Between-subjects Self versus Friend Affective Predictions .....	105
6.0 Abstract.....	105
6.1 Introduction .....	105
6.2.1 Participants .....	107
6.2.2 Design.....	107
6.2.3 Procedure and Measures.....	108
6.3 Results .....	109
6.3.1 Affect Predictions.....	109
6.3.2 Correlation analysis .....	110
6.4 Discussion.....	110

Chapter 7 .....	112
Study 6: Focalism and Interpersonal Affective Forecasting .....	112
7.0 Abstract.....	112
7.1 Introduction .....	112
7.2 Method.....	115
7.2.1 Participants .....	115
7.2.2 Design.....	116
7.2.3 Procedure.....	116
7.2.4 Measures.....	117
7.3 Results .....	119
7.3.1 Measure Composites .....	119
7.3.2 Manipulation Checks.....	120
7.3.2.1 Focalism .....	120
7.3.2.2 Clarity of Event .....	120
7.3.2.3 Effect of Baseline .....	121
7.3.3 Forecast Bias .....	121
7.3.4 Effects of Immune Neglect.....	127
7.3.4.1 Immune Neglect (Perception of Recovery).....	127
7.4 Discussion.....	127
Chapter 8 .....	133
Conclusions and Implications.....	133
8.0 Abstract.....	133
8.1 Main Findings.....	133
8.2 Consistent Findings .....	135
8.3 Discrepant Findings.....	139
8.4 Alternative Explanations for Impact Bias .....	141
8.5 Limitations and Future Directions.....	143
8.6 Conclusion.....	145
References .....	149

Appendices .....	159
Appendix A: Questionnaire for Study 1 .....	159
Appendix B: Condition Primes for Study 1 .....	164
Appendix C: RAT Conditions for Study 1 and Study 2 .....	166
Appendix D: Questionnaire for Study 2 .....	168
Appendix E: Material Covered for Study 3 .....	171
Appendix F: Questionnaire for Study 3 .....	172
Appendix G: Questionnaire for Study 4 .....	174
Appendix H: Vignettes for Study 4 .....	176
Appendix I: Means and Results for Study 4 .....	178
Appendix J: Questionnaire for Study 5 .....	180
Appendix K: Means and Results for Study 5 .....	183
Appendix L: Questionnaire for Study 6 .....	184

## Acknowledgments

Thanks are due to many people for their support and encouragement throughout this project. I am very grateful to my supervisor, Brian Parkinson, for his insights and for reading many versions of the following chapters and answering numerous questions throughout. Maria Friedmannova, Laura Taylor, Dragos Petrescu, Gwenda Simons, Ilmo van der Löwe, Natasha Phiri, Swati Kanoi, Ana Saraiva, Philippa Nuttall, Manana Mamulaishvili, and Elena Netsi, thank you for your generosity, knowledge, sage advice, and words of encouragement. I am truly indebted to each of you.

To the Emotion and Social Relations Research Group, visiting researchers, and colleagues in Experimental Psychology, thank you for making the department an animated and engaging place. Thanks are also due to our group's research assistants who helped with data collection. I am very grateful to Brasenose College for their support of my research and for the vast amounts of tea and friendships throughout the years. To all my Oxford friends, and friends, acquaintances, and researchers from home and abroad, I'm glad our paths have crossed and I hope they do so often!

Finally, thanks go to my parents and grandparents for all their love and endless support. Thanks are especially due to my brother Fred, for coaxing me out of self-doubts and inspiring me to see the best in people and circumstances. And for making me laugh.

## List of Figures

Figure 2.1. Interactive effect of feedback condition and predictions/experiences on ratings of positive feelings. ....	48
Figure 2.2. Interactive effect of feedback condition and predictions/experiences on ratings of calm feelings. ....	49
Figure 2.3. Interactive effect of feedback condition and ITE condition on ratings of calm feelings.. ....	50
Figure 2.4a. Interactive effect of feedback condition, ITE condition, and person on ratings of calm feelings.. ....	51
Figure 2.4b. Interactive effect of feedback condition, ITE condition, and person on ratings of calm feelings.. ....	51
Figure 3.1. Interactive effect of temporal condition and prediction/recall on ratings of positive feelings.....	71
Figure 3.2a. Interactive effect of temporal condition, prediction/recall, and person on ratings of positive feelings.....	72
Figure 3.2b. Interactive effect of temporal condition, prediction/recall, and person on ratings of positive feelings.....	72
Figure 7.1. Interactive effect of person (higher entity ITE and lower entity ITE) and condition on ratings of positive feelings. ....	122
Figure 7.2. Interactive effect of event valence and predictions/experiences on ratings of positive feelings.....	123
Figure 7.3. Interactive effect of event valence and predictions/experiences on ratings of calm feelings.....	124
Figure 7.4a. Interactive effect of event valence, predictions/experiences, and condition on ratings of calm feelings.. ....	126
Figure 7.4b. Interactive effect of event valence, predictions/experiences, and condition on ratings of calm feelings.. ....	126

# Interpersonal Affective Forecasting

Janice L. Sanchez  
Brasenose College

D.Phil in Experimental Psychology  
Submitted Michaelmas Term, 2013

## Abstract

This thesis investigates individual and interpersonal predictions of future affect and explores their relation to implicit theories of emotion, prediction recall, debiasing, and focalism. Studies 1, 2, and 3 assessed affect predictions to upcoming reasoning tests and academic results, and Studies 4, 5, and 6 concerned predictions for self-identified events. The first study investigated the influence of implicit theories of emotion (ITE; Tamir, John, Srivastava, & Gross, 2007) on impact bias and prediction recall manipulating ITE between participant pairs who predicted and reported their affective reactions to feedback on a test of reasoning skills. Neither impact bias nor recalled predictions were affected by the manipulation. Recalled affect predictions differed from original affect predictions, but were not influenced by experienced affect. Study 2 further investigated the effects of target event timing on impact bias and affect prediction recall. The results showed no differences between individual and interpersonal impact biases across conditions. Again, recalled predictions differed from original predictions, and were not influenced by experienced affect. Study 3 investigated the influence of prior information about impact bias on interpersonal affective forecasting involving real-world exam results. The results demonstrated no differences in predictions due to information, however, significantly less unhappiness was predicted for participants' friends compared to self-predictions. Study 4 examined the effect of different de-biasing information on affective predictions. The results demonstrated no differences in affective predictions by condition and found that participants' ITE were not associated to affect predictions. Study 5 examined individual and interpersonal affect predictions using a between-subjects design in place of the within-subjects design. The results demonstrated no differences between the affect predictions made for self and for friends, and ITE were not associated with predictions. Study 6 examined the impact bias in interpersonal affective forecasting and the role of focalism. The results demonstrated distinctions between individual and interpersonal affecting forecasting with individual impact bias for positive reactions for negative events and individual and interpersonal reverse impact bias for calm emotional reactions to positive events. Immune neglect was found not to be associated with predictions. Overall, the studies found evidence for similar individual and interpersonal predictions which are resistant to influence.

## **Detailed Abstract**

The research presented in this thesis investigates personal and interpersonal predictions of future affect. It also explores their relation to implicit theories of emotion, prediction recall, debiasing, and focalism. Chapter 1 reviews previous research on affective forecasting and interpersonal affective forecasting noting that while there has been a great deal of research conducted on affective forecasting, interpersonal affective forecasting has only recently received attention. The chapter discusses factors that influence affective forecasting first focusing on psychological literature involving self-other effects. It makes the case that self-other differences should be expected in interpersonal affective forecasting based on considerations of access, projection, and similarity. This discussion is followed by an examination of factors associated with affect forecasting. Specifically, it reviews the concepts of immune neglect, focalism, implicit theories of emotion, recall of past predictions, belief perseverance, and information source. The chapter ends with a brief summary of the six studies reported in the thesis.

Chapter 2 investigates the influence of implicit theories of emotion on impact bias and the recall of affect predictions. Implicit theories of emotion are beliefs about emotions' attributes based on Dweck's (1986) implicit theories of intelligence (Tamir, John, Srivastava, & Gross, 2007). People who possess more incremental theories of emotion, view emotions as malleable and controllable, and have a flexible, contextual interpretation of events. Contrastingly, those with entity theories of emotion view emotions as fixed and not controllable. They possess a more fixed, internal interpretation

of events. The study presented in this chapter used an experimental design to examine the effects of manipulated beliefs about implicit theories of emotion on individual and interpersonal affective forecasting. Participants were primed with either incremental theories (that emotions were controllable and changeable) or entity theories (that emotions were uncontrollable and unchangeable). Afterwards, participants predicted their affective reactions and those of their study partner to receiving positive and negative feedback on a test of reasoning skills which they later completed. Following the test they reported their experienced affective reactions. The study found that participants predicted that their feelings would be more pleasant than they actually were for positive feedback and more unpleasant than they actually were for negative feedback (with the exception of calm feelings for friends). Impact bias (the difference between predicted and reported experienced affect) was not affected by the implicit theories of emotion manipulation. Recalled affect predictions were not significantly different by the manipulation condition, but did differ from participants' original affect predictions. Results demonstrated that recalled predictions were not influenced by experienced affect.

Chapter 3 presents a study extending Study 1. The study investigated the effects that the timing of the target event has on impact bias and affect prediction recall. Specifically, there was a delay between the time that participants made affective predictions and the target event in one of the conditions. Participants were asked to make predictions about their affective reactions to receiving positive and negative feedback on a test of reasoning skills and for their study partner either a week prior to the lab session

(distant condition) or at the start of the lab session (recent condition). Participants then completed the reasoning skills test during the session and rated their experienced affective reactions. Unlike Study 1, participants were only given negative test performance. The results showed no differences between individual and interpersonal impact biases across conditions. The study found that participants predicted more unpleasant feelings than were experienced for both self- and friend-predictions. The study also found that participants' original and recalled predictions differed significantly from one another in the distant condition for both self- and friend-predictions of positive feelings for the friend with greater entity theories of emotion, and differed for self-predictions for calm feelings across conditions. Recalled predictions were (mostly) not influenced by experienced affect similar to Study 1.

Chapter 4 presents the results of a different study design involving real-world assessment results. It investigated the influence of prior information about impact bias and its mechanisms on interpersonal affective forecasting. The study compared predictions of emotional responses to examination results made by students who were either informed about or unaware of impact bias. The results demonstrated no significant differences in predictions (for self or friend) resulting from knowledge about the impact bias. Regardless of their condition, participants predicted significantly less unhappiness for friends and predicted that the intensity of affective reactions to the events would decrease over time.

Chapter 5 reports the results of a study into the influence of specific and general information about impact bias on affective predictions. The study examined the effect that different types of de-biasing information have on individual and interpersonal affect predictions. In the study, participants predicted their affective reactions and those of a close friend to self-identified negative future events after reading debiasing information. Participants were randomly allocated to a specific-knowledge condition, a general-knowledge condition, or a no knowledge condition which varied the debiasing information presented. The results demonstrated no differences in affective predictions (for self or friend) by condition. The study also found that participants' implicit theories of emotion were not associated to affect predictions.

Chapter 6 presents a study more simply investigating the self and friend affective predictions. The study examined individual and interpersonal affect predictions using a between-subjects design in place of the within-subjects design used in the previous study. Participants made predictions of either their own affective reactions or those of a close friend to self-identified negative future events. The results demonstrated no differences between the affect predictions made for self and for close friends. Further, additional measures included demonstrated no differences by condition and implicit theories of emotion were not associated to affect predictions.

The study presented in Chapter 7 examined the impact bias in interpersonal affective forecasting and the role of focalism. The study asked participants to predict their affective reactions and those of their study partner, and both then reported their

experienced affective reactions to self-identified positive and negative events. Focalism was manipulated by having half the participants focus on the event while the others were asked about the event in context. The results demonstrated distinctions between individual and interpersonal affecting forecasting. The study found individual impact bias for positive reactions for negative events and reverse impact bias for individual and interpersonal predictions of calm reactions to positive events for those in the focal condition. An exploratory measure of immune neglect included was not associated with any effects.

The thesis concludes with summaries of the main findings in Chapter 8. The chapter discusses consistent and discrepant findings across studies and integrates them with the existing literature on affective forecasting. Overall, the studies demonstrated a lack of differences between individual and interpersonal affect predictions (similar to Pollmann & Finkenauer's, 2009, findings), implicit theories of emotion did not influence forecasting accuracy, and affective predictions were not influenced by prior information presented to the participants. These findings lead to the conclusion that people may likely use beliefs about typical emotional reactions to events to make both individual and interpersonal affect predictions, and that affect predictions are resistant to influence. The discussion of these and other findings is followed by a proposal of open questions that still need to be addressed, limitations, implications, and suggested future directions for research.

## Chapter 1

### **Theoretical Background and Study Summaries**

#### **1.0 Abstract**

This chapter discusses previous research on affective forecasting and makes the case for investigating interpersonal affect forecasting. First the social psychological literature on self-other differences that may play a role in interpersonal forecasts is reviewed. This is followed by an examination of biases, beliefs, and other factors that are potentially associated with affect forecasting, specifically: immune neglect, focalism, implicit theories of emotion, belief perseverance and information source, and recall of past predictions. Finally, the six studies reported in this thesis are introduced and summarised.

#### **1.1 Affective Forecasting and Impact Bias**

Researchers investigating affect forecasting have repeatedly noted the difficulties and biases associated with predicting one's emotions in reaction to future events and situations (for a review, see Wilson & Gilbert, 2003). Research has demonstrated that people can correctly indicate the valence of their future emotions and specify the distinct emotions they believe they will experience, but they often mispredict the duration and intensity of these emotions (these errors are jointly referred to as "impact bias," Gilbert, Driver-Linn, & Wilson, 2002). This impact bias, or overestimation of future emotions, has been found for a range of events, including football games, presidential elections, feedback about one's personality, romantic breakups, failed exams, relocations, and job

loss. According to Gilbert, Pinel, Wilson, Blumberg, and Wheatley (1998), there are various possible explanations for impact bias, including the misconstrual of future events, inaccurate intuitive theories about the emotional impact of events, motivated distortion, and an undercorrection for the passage of time, but research in this area has mainly explored “immune neglect” (ignoring one’s psychological coping mechanisms which reduce the intensity of emotions towards negative events) and “focalism” (the tendency to view events in isolation, overlooking the impact of other important co-occurring events).

Prior to the publication of the two often-cited studies on affective forecasting (Gilbert et al., 1998; Wilson, Wheatley, Meyers, Gilbert, & Axsom, 2000), expectations of future emotional reactions had been investigated by researchers who laid some initial groundwork in the area (Baron, 1992; Kahneman & Snell, 1990; Totterdell, Parkinson, Brinner, & Reynolds, 1997). Their work was in part motivated by interests in decision-making, beliefs about emotions, and emotion regulation which drew upon relevant research on the influence of affective states (Schwarz & Clore, 1983) as well as self-fulfilling predictions of future behaviours (Sherman, 1980) and intuitive predictions based on heuristics (Kahneman & Tversky 1987).

Since then, several researchers have investigated various facets of affective forecasting, typically looking at potential moderators of inaccuracy (or impact bias), including immune neglect (Gilbert et al., 1998), focalism (Wilson et al., 2000), empathy gaps (Loewenstein & Schkade, 1999), temporal focus (Buehler & McFarland, 2001), culture (Lam, Buehler, McFarland, Ross, & Cheung, 2005), age (Nielsen, Knutson, &

Carstensen, 2008), past emotional experiences (Morewedge, Gilbert, & Wilson, 2005), social exclusion (DeWall & Baumeister, 2006), and emotional intelligence (Dunn, Brackett, Ashton-James, Schneiderman, & Salovey, 2007) amongst others. Researchers have also noted real-world implications of affect forecasting for a wide range of health and policy matters, for instance, health decisions (Halpern & Arnold, 2008), intergroup contact (Mallett, Wilson, & Gilbert, 2008), and age-related financial decision-making (Nielsen et al., 2008).

The typical justification for research in this area rests on the notion that people make decisions about their lives based on their expectations of the future emotional consequences of their choices (Gilbert et al., 1998; Hoerger & Quirk, 2010). Discovering methods to improve affective forecasting on the whole appears to be a worthwhile though difficult aim (Wilson & Gilbert, 2005). However, the apparent ubiquity of biases in affective forecasting in everyday life calls into question the need to correct them. As biases can serve useful functions, it may be difficult to determine if and when interventions that seek to correct forecasting errors are necessary. Part of the impact bias's universality stems from the fact that impact bias can be viewed as motivated in various instances. For example, overestimating positive reactions to upcoming married life may help to induce positive affect in the present moment, and exaggerating the negative affect consequences of failing to study may be a successful strategy for motivating productive work (Gilbert et al., 1998). These may be beneficial motivated distortions, but interventions implemented to increase forecasting accuracy may be useful

if prediction inaccuracies or distortions become harmful. Take the case of continually overpredicting the impact of future negative events which could perpetuate feelings of anxiety in individuals. For instance, students continually over-predicting negative affect for poor outcomes in upcoming exams might end up studying for more time than is reasonable and remain overly stressed about exams. Continually motivating yourself in this manner may prove unhealthy in the longer term, and, if so, learning to improve forecasting accuracy would reduce these negative effects. Unsurprisingly, whether or not forecasting problems are in fact related to depression, anxiety, or bipolar disorders or symptoms is a topic of current research interest. For example, a recent study found evidence for a dysphoric forecasting bias (the tendency of those in dysphoric states to overpredict future negative emotions, Hoerger, Quirk, Chapman, & Duberstein, 2012). The researchers raised the idea that affective forecasting bias-reduction strategies may be useful in the treatment of certain aspects of clinical depression. While the research reported in this thesis did not directly address the question of whether reducing biases is necessary, it did investigate possible moderators of the impact bias and assessed how they operate in interpersonal forecasts.

The study of emotion in psychological research more generally has a long history with several definitions and competing theories about what constitutes an emotion. Typically an emotion has both physiological and psychological predeterminants and responses. According to Parkinson (1995), emotions are thought of as “evaluative, affective, intentional, and short-term states” (p. 9). This definition allows for comparisons

to moods, which are also evaluative and affective, but do not necessarily have intent (directed towards an object) and span more time. In affective forecasting research, the term ‘affect’ is often used interchangeably with ‘emotions’ or ‘feelings.’ Additionally, some studies look at measures of general ‘happiness’ while others look at discrete emotions (e.g., cheerful, sad). For the purposes of this thesis, affect refers to the discrete emotions measured in the studies.

## **1.2 Interpersonal/Empathic Affective Forecasting**

As affective forecasting biases have primarily been investigated for individuals, an interesting question is whether these affective forecasting self-errors extend to others. Van Boven and Loewenstein (2005) suspect that most of the self-judgement biases have corresponding biases in social judgements. Research by Wilhelm and Perrez (2004) makes the case that judgements of partners’ feelings (empathic inferences) are in part based on own feelings. Wilhelm and Perrez investigated partners’ perceptions of each others’ emotions focusing on interpersonal accuracy (here interpersonal accuracy refers to the accuracy in perceiving others’ thoughts and feelings). Their findings demonstrated partner similarity in the judgement of affect. It is important to note that their work is concerned with current affect (as opposed to future affect). Although there has been significant research on individuals’ own predictions of future affect, there has been almost no work on interpersonal (or empathic) emotional forecasting (except Pollmann & Finkenauer, 2009), and none using a diary methodology (as deployed in two of the studies presented in this thesis). According to Pollmann and Finkenauer, who investigate

affect forecasting in close friendships, empathic forecasts involve the prediction of another's affective experience to a future event. They predicted that the impact bias found in individual affect forecasting may well have a corresponding (but less pronounced) bias in interpersonal affect predictions. For interpersonal predictions, impact bias would involve a discrepancy between the prediction of future affect for another person and that person's subsequent emotional reaction.

Investigating interpersonal affective forecasting is important because surprisingly little is known about it. There is potential for much more research in this area in terms of assessing different contexts (such as the ones explored in individual forecasting), how it operates in different types of relationships (friendship, romantic, familial, professional), or investigating corresponding or novel biases or factors that promote more accurate forecasts. If people make decisions about their lives based on their expectations of the future emotional consequences of their choices (Gilbert et al., 1998; Hoerger & Quirk, 2010), surely their expectations concerning the emotions of others contribute to their decisions about their interactions with them. As such, interpersonal affective forecasting deserves more attention from researchers than it has yet received. Additionally, research in this area may add to what is already known about individual affective forecasting because any differences found between individual and interpersonal forecasting could elucidate underlying causes and functions of individual affective forecasting.

Interpersonal forecasting may also contribute to work on the psychology of relationships, such as close friendships. Pollmann and Finkenauer (2009) note that the

correspondence between two friends' forecasts could lead to feelings of agreement and being understood and validated which are beneficial for friendships. To take this one step further, discussing emotion predictions could be a manner of gauging how much support a friend may need. Recurrent prediction inaccuracies could therefore serve as a marker of poor future prediction-making abilities and perhaps the need for additional support or advice. If inaccurate predictions are common, discussing emotion predictions could aid in managing friends' emotional expectations. Considering these possible functions, research in interpersonal forecasting has implications for social interactions that may differ from those of individual forecasting.

Pollmann and Finkenauer (2009) were the first to empirically assess empathic forecasting accuracy. They used a design in which participants forecasted their own and others' affective responses to positive and negative feedback on a cognitive test, predicting that empathic (friend) forecasts would also be susceptible to the impact bias (though less so than self-forecasts). The researchers reasoned that the emotion intensity bias (Chambers & Suls, 2007) would lead to less empathic prediction overestimations, and therefore less impact bias for empathic predictions. The emotion intensity bias is a bias stemming from the perception that other people's affective experiences are less intense than people's own affective experiences in part due to only indirect access to other people's affective experiences. However, Pollmann and Finkenauer predicted that the emotion intensity bias would not completely eradicate the impact bias as people make predictions using intuitive theories of emotion adaptation and emotion duration.

Additionally, they expected to find strong between-person forecasting correspondence (defined as the correspondence between participants' empathic forecasts from their friends and their own self-forecasts). This correspondence was expected to be stronger than empathic forecasting accuracy. The researchers conducted three studies assessing forecasting for pairs of friends (Studies 1-3) with one study designed to assess forecasting for friends compared to strangers (Study 2). They also investigated whether making empathic forecasts after taking the test and receiving feedback improved accuracy of predictions (Study 3). Their findings demonstrated that self-forecasts did not differ significantly from forecasts made for friends thus exhibiting between-person forecasting correspondence. They reported that individual and empathic forecasts were both subject to an impact bias, and therefore differed from participants' reported experience. Interestingly, interpersonal forecasts for strangers also differed from their subsequent reported experience. The researchers concluded that the similarity of forecasts for self, friends, and strangers may imply that all these forecasts are based on a common intuitive theory of how affect works. However, their design did not permit them to assess whether the similarity was due to intuitive theories or projection (i.e., assuming that one's own reactions are shared by others as discussed in the next section), and they note that more research into the processes underlying empathic forecasts is needed. Additionally, the researchers did not assess or manipulate the possible sources of impact bias in empathic forecasts (such as immune neglect and focalism) that seemingly underlie impact bias in individual affective forecasts (Wilson & Gilbert, 2005).

### 1.3 Self-Other Differences

Various theories can provide insight into why personal and interpersonal affective predictions might differ. The theories draw on differences in perceptions of emotions for self and others and mainly include issues of access, projection, and similarity. In terms of access, the emotional intensity bias could account for different predictions. Research suggests that people consider their own affective experiences as more intense than others' (Chambers & Suls, 2007; Miller & McFarland, 1987) because they have direct access to own but not others' affect. Further, the indirect information about other people's affect that is available from emotion displays may be misleading because people can purposefully mask underlying feelings, potentially making them seem weaker than they really are (Chambers & Suls, 2007). Paralleling the emotional intensity bias is Jordan et al.'s (2011) theory of "emotional pluralistic ignorance," which may likewise account for differences between the perception of emotional experiences for self and for others. According to this theory, individuals observe others' well-being in public settings and infer that people mostly experience positive emotions rather than varied emotional experiences. This perception bias is due to the fact that people tend to suppress negative emotions in public and experience more negative emotions in private. If emotional pluralistic ignorance is related to affective forecasting, it would lead to less negative affect levels predicted for friends compared to predictions for self. As self-predictions have been found to be overestimated for negative affect, these friend predictions would be closer to the actual affect experienced (and therefore less biased). There is also the

possibility of an underestimation of negative affect for these friend predictions. This theory would predict differences in self- and other-forecasts, like those predicted for the emotional intensity bias, that have not yet been supported in the existing literature (e.g., Pollmann & Finkenauer, 2009)

Recently, White and Van Boven (2012) have extended Chambers and Suls' (2007) and Jordan et al.'s (2011) work suggesting that people perceive their own emotions as more intense than others'. They added the idea that perceived differences may change with time based on their own previous finding that recent emotions are perceived as more intense than distant ones. White and Van Boven found evidence for an "immediacy bias" in social-emotion comparisons, finding that the tendency to perceive one's own emotions as more intense than others' diminishes with time. In seven studies, they found that people perceived their own emotional reactions as more intense than others' reactions to the same events, but that the differences dissipated with time from the event (self-predictions attenuated). Differences were also reduced when participants were reminded that public displays of emotion may not reflect experienced emotions. These differences in the perceptions of others' affect might be related to differences between self- and other- directed affective predictions. Specifically, the perception of less emotional intensity for others is likely to lead to more conservative predictions of future emotions for others. These more conservative ratings may in fact be more accurate (closer to experienced affect), attenuating interpersonal impact bias. Increased interpersonal affect prediction accuracy could then be due to effects from other biases,

not necessarily due to more accurate attunement to others' affective reactions. However, a possible reason for not finding differences between self- and other-predictions may be due to the transient nature of the emotional intensity bias.

In terms of projection, Van Boven and Loewenstein (2003) conceptualise a social projection model in which individuals use self-predictions as their basis for other-predictions. According to Van Boven and Loewenstein, self-predictions are a good starting point for predicting how others will react to situations, and as such, social prediction accuracy is then dependent on self-prediction accuracy. Their results confirmed this hypothesis. People first consider their own reactions to a situation and then make new judgements for others' reactions by tempering their self-predictions according to differences perceived between themselves and others (Van Boven & Loewenstein, 2005). Differences that individuals perceive between themselves and others may also have implications for interpersonal affective forecasting. For instance, perceived dissimilarity to another may result in an interpersonal affective prediction that is markedly different from a self-prediction.

Igou's (2008) work finds self-other effects for affective predictions owing to asymmetric immune knowledge (AIK) whereby individuals have greater knowledge of their own coping strategies compared to those of others (calling the notion of immune neglect for self-predictions into question). According to Igou, greater knowledge of one's own coping strategies should therefore make self-predictions more accurate. Igou (2008) found that participants predicted longer durations of negative affect for others (strangers)

compared to themselves. However, Igou's studies asked participants to imagine others' future reactions in a distinctive manner. They instructed participants to imagine the events from another person's perspective and then to rate their affect rather than instruct them to rate what they believed the other person would feel. Asking participants to imagine events from another person's perspective could lead to typically focused views (inaccurate predictions for others) compared to asking participants to rate others' affective reactions to events with additional considerations for others' reactions which would lead to unfocused views (and more accurate other-predictions). Further, taking on another's perspective could minimise or change the relevancy of motivational self-other effects. For instance, from a social-comparison perspective, if immune neglect is self-enhancing, it may not operate in the same way with an alteration in its targets.

Psychologists have often speculated that individuals' perceptions of others begin with perceptions of the self (e.g., Krueger & Clement, 1997; Ross, Greene, & House, 1977), highlighting the importance of perceived similarity. Ross and colleagues demonstrated the "false consensus effect," the belief that others are more similar to ourselves than is objectively the case. Krueger and Clement argued that social projection reflects an overestimation of the actual correlation between the judgements of the self and others. Analogous to this effect, emotional prediction biases can stem from the projection of one's own beliefs about emotional reactions onto others. This account would support similar self- and social-prediction accuracy. False uniqueness (Suls & Wan, 1987), on the other hand, would have opposite effects to projection. The "false uniqueness effect"

involves individuals viewing themselves as dissimilar from others, depending on access to information. Under this effect, self-beliefs may not be applied to others, and one's own beliefs about emotional reactions would therefore not be projected onto others. Individuals who believe that they experience emotions very uniquely would likely not have similar self-predictions and social-predictions. The studies reported in this thesis did not compare false consensus with false uniqueness, but these theories, like similarity to target, are potential moderators for self-other differences in affect predictions.

Finally, differences between how people think about themselves and others have also been identified in cognitive neuroscience research. Mentalising, or asking perceivers to draw inferences about others' states, involves "self-projection" (representing future, past, counterfactuals, and targets' perspectives) neurological structures (Zaki & Ochsner, 2012). In cognitive neuroscience research, similarity to target also involves physiological differences. Mitchell, Macrae, and Banaji (2006) found a neurological dissociation for mentalising about a similar other compared to mentalising about a dissimilar other. This has some implications for interpersonal predictions. If individuals think about others' states differently compared to thinking about their own states, then their ratings for others' emotions could also differ, particularly if they believe that they are dissimilar to the target.

Taken together, these ideas suggest that the emotional intensity bias may provide a plausible explanation for any differences between personal and interpersonal affective forecasting, particularly if differences between the perceptions of emotions for self and

for others are highlighted. However, projection of one's affective predictions could likewise be the basis of interpersonal predictions and thus, the similarity to the target of judgements should moderate any effect. Extending this reasoning to affective forecasting predictions, it seems plausible that if people believe that their own affective experiences are more intense than others', then predictions of others' future affect should be more conservative than self-predictions, and therefore less susceptible to the impact bias. On the other hand, if participants are using their own affective predictions to form predictions for others, then these could be equally biased.

#### **1.4 Immune Neglect and Focalism**

##### *Immune Neglect*

Gilbert and colleagues (1998) investigated the effect of immune neglect as a potential source of impact bias in affective forecasts. Immune neglect (or the coping fallacy) involves people ignoring their psychological immune systems (or coping mechanisms) that ameliorate their affective reactions to negative events. People's psychological immune systems are a composite of ameliorating mechanisms (e.g. rationalisation, dissonance reduction, self-deception, self-serving attribution, etc.) that protect them from too much gloom (Gilbert et al., 1998). The researchers found that impact bias tended to occur more for negative events than for positive events. They proposed that impact bias may either be more robust for negative events or that the psychological immune system does not augment positive affect. Additionally, as people seek out positive events and avoid events that lead to negative consequences, people may

have more experience with positive events' affective consequences and therefore with more disconfirmations of their overestimations for positive events than for negative events.

According to Hoerger (2012), research has looked at various elements of immune neglect assessing the rationalisation of source differences (i.e., whether feedback came from a fallible or infallible source, Gilbert et al., 1998), different coping styles (Hoerger, Quirk, Lucas, & Carr, 2009), and different cognitive processes (Hoerger, Quirk, Lucas, & Carr, 2010). These studies found that immune neglect measures were correlated with emotional reactions but not with predictions implying that coping strategies buffered situational reactions (Hoerger, 2012). According to Gilbert and colleagues (1998), people's psychological immune systems work best when others are not commenting on them, for example, highlighting the ability to overcome negative events or pointing out rationalisation strategies. When people are aware that they are using rationalisation strategies, the strategies do not work as well. The researchers note that people are quick to notice others' psychological immune systems and will eventually admit that they, too, rationalise. But, people still fail to consider their own psychological immune systems when forecasting their affective reactions. When predicting affective reactions to negative events, for reasons of access, it seems likely that interpersonal forecasting accuracy would be greater than individual forecasting accuracy as people could factor in the notion that others often rationalise negative events and therefore adjust predictions accordingly.

### *Focalism*

According to Gilbert et al. (1998), people focus on a particular event when predicting their future affective reactions excluding other events that could likewise alter their reactions. The researchers argued that failing to consider nonfocal events contributes to impact bias. As affective states are influenced by multiple positive and negative events, being overly focused on a particular event to the exclusion of other events with affective consequences could lead to misestimating future affect. In support of this prediction, Wilson et al. (2000) showed that people make more prediction errors when considering events in a focal manner. The researchers demonstrated that asking participants to think of other future events (by keeping a diary of these activities) in addition to the focal event reduced impact bias. Interestingly, focalism has not yet been investigated in relation to interpersonal affective forecasting. More generally, the case could be made that contemplating others' future affective experiences may be more involved than contemplating one's own. Predicting future affective responses for others requires one to additionally consider another person's perspective, beliefs, and interactions with the environment. Considering this additional information may reduce the focus on the future event and make interpersonal prediction accuracy more likely. However, if individuals simply project their own forecasts onto others without these additional considerations, then interpersonal predictions are likely to be as inaccurate as personal predictions.

## **1.5 Implicit Theories of Emotion**

### *Implicit Theories of Emotion*

The study of psychological coping mechanisms falls under the area of affect regulation; however, specific strategies and theories in the affect regulation framework and affect forecasting have yet to be studied. In particular, no study has yet considered what influence beliefs about the effectiveness of emotion regulation strategies have on forecasting accuracy. The first study to directly assess the connection between a related but different concept, emotional intelligence, and affective forecasting mostly concluded that higher emotional intelligence leads to better forecasting (Dunn et al., 2007). The Dunn et al. (2007) study demonstrated that the Emotion Management component of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002) was strongly correlated with better affective forecasting. Recently, Hoerger, Chapman, Epstein, and Duberstein (2012) conducted two studies that demonstrated that enhanced forecasting accuracy was indeed linked with emotional intelligence as measured by two performance-based tests: the Interpersonal Judgment Inventory (IJI; Christiansen, Wolcott-Burnam, Janovics, Burns, & Quirk, 2005) and the Judgment of Emotions Test (JET; Hoerger, Chapman, et al., 2012); and self-report surveys: the Self-Rated Emotion Intelligence Scale (SREIS; Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006), the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF; Petrides & Furnham, 2006), and the Survey of Emotional Intelligence (SEI; Tett, Wang, Gribler, & Martinez, 1997). While the research on affective forecasting and

emotional intelligence is growing, there is still little evidence concerning emotion regulation and underlying beliefs about emotions and affective forecasting (both at the individual and interpersonal level).

If we consider that regulation of emotions and certain aspects of emotional intelligence may involve personal beliefs that emotions can be controlled (or regulated), implicit theories of emotion could also be involved in affective forecasting. Tamir, John, Srivastava, and Gross (2007) established that there are individual differences in people's implicit theories of emotion; some people view emotions as fixed (entity theorists) while others view them as malleable (incremental theorists, cf. Dweck's, 1986, implicit theories of intelligence). In a longitudinal study of a student population, the researchers linked implicit theories of emotion to emotional and social adjustment. Those participants who believed that they could control their emotions were more effective in doing so. The framework of individual differences in beliefs about the controllability of emotions lends itself well to an exploration of an association with predictions of future emotions. Implicit theories of emotion may lead to more or less accurate predictions. Specifically, those who possess beliefs of greater emotion flexibility may be more likely to have greater forecasting accuracy (for both self- and other-predictions) compared to those that endorse a more fixed view.

## **1.6 Belief Perseverance and Information Source**

### *Belief Perseverance and Information*

Surprisingly, no study has yet investigated whether simply educating people about the impact bias reduces its influence. Research in affective forecasting has assessed other strategies for reducing the impact bias such as using a manipulation of diaries (Wilson et al., 2000), event importance (Hoerger et al., 2010), and cognitive tasks (Sevdalis & Harvey, 2009). Arguably, informing people about the impact bias and its causes may alter subsequent emotion predictions. First of all, informing people of biases may change their affective predictions in the sense that they may now aim for more accurate predictions to either appear competent or to compensate for perceivably inherent shortcomings. Secondly, information about the impact bias may remind people of their psychological mechanisms (coping strategies) that can diminish the effects of immune neglect and/or produce a less focal view of future events. And if they are aware of the pitfalls of immune neglect and focalism, they may successfully avoid their repercussions.

It is also conceivable that informing people about the impact bias will not substantively change their predictions of future affect. This might be due to the fact that the impact bias is prevalent and persistent. In fact, debiasing attempts through information dissemination have proved somewhat unsuccessful for other biases in the psychological literature. For instance, debiasing has been unsuccessful for hindsight bias (Fischhoff, 1977) which is the tendency for people to perceive events as more predictable than they actually were. This bias is similar to the impact bias in the sense that hindsight bias involves misremembering *facts* about events, while misremembering affective predictions (which may partially account for impact bias) involves misremembering

*affective reactions* to events and thus failing to adjust future predictions in line with disconfirmatory feedback (Meyvis, Ratner, & Levav, 2010). Those informed about hindsight bias and how to avoid it still performed comparably to the other groups (Fischhoff, 1977).

Another seemingly avoidable bias in economics, the classic sunk cost bias, is also resistant to debiasing efforts. The sunk cost bias is the tendency to continue on an endeavour once you have made an initial investment. Arkes and Blumer (1985) found that economics students and psychology students who had taken economics courses were not better at avoiding the sunk cost bias compared to psychology students with no background in economics. It seems that people tend to strongly hold onto initial ideas or beliefs despite disconfirming evidence. However, multiple exposure to disconfirming evidence helps change beliefs in these types of experiments. For instance, Gardner and Dalsing (1986) had psychology students report on misconceptions that they still endorsed, and demonstrated that misconceptions drop when students had taken six psychology classes. Vaughan (1977) also demonstrated that a single class did not remove misconceptions.

Although belief change is problematic, previous research has found that teaching people about social psychology studies can alter their behaviour. Beaman, Barnes, Klentz, and McQuirk's (1978) studies that provided information about the bystander effect (the finding that people help less in emergencies when bystanders are present) led to changes in their future helping behaviour. Similarly, altering participants' knowledge

about their emotional reactions through teaching could likewise promote change in their beliefs about emotions and actions. Those given information about how emotional predictions operate would be more likely to alter their subsequent predictions of affect than those not given information.

Debiasing effects seem mixed, and because debiasing has not been directly investigated in relation to the impact bias specifically through teaching or providing information, some of the studies reported in this thesis address this omission.

#### *Information Source*

Another reason why debiasing may be unsuccessful concerns the presentation of the debiasing information, particularly its target. Research has shown that individuals tend to better accept target case information (information about an individual) and discount consensus information (information about the more general behaviour of others presented in base rates, Nisbett & Borgida, 1975). Nisbett and Borgida (1975) conducted two experiments informing participants about distributions (base rates) for previous experiments and found that this information did not influence predictions about participants' own behaviour, but target case information did. Thus, one of the present studies attempted to ascertain whether the manner in which information about the impact bias is presented affects participants' beliefs and their subsequent individual and interpersonal affect predictions.

### **1.7 Biased Recall**

#### *Recalled Emotion Predictions*

Another strand in the affective forecasting literature investigates impact bias and memory and learning effects. Work in this area has demonstrated that accurate recall of both past predictions and past experiences is relatively weak (Meyvis et al., 2010; Wilson et al., 2003, Study 2). Meyvis et al. (2010) propose that people recall their emotion predictions as more consistent with their most recent emotional experiences than with their actual initial predictions. Doing so, they posit, leads people to fail to recognise errors in their predictions and consequently not revise their intuitive theories about emotional reactions to permit more accurate future emotion predictions. In other words, people recall their initial predictions as more accurate than was actually the case. However, this theory would not apply to interpersonal affective predictions, since in this case predictors do not personally experience the affective reactions that they predicted. If actual experienced emotion is distorting recall of previous predictions, then its absence could promote greater accuracy in recall for interpersonal predictions. Even though observation of a friend's reaction could give insight into their emotional experience and similarly distort recall, recalled friend-predictions should still be more accurate (closer to original predictions) compared to recalled self-predictions. Items on recalled predictions were included in some of the current studies in order to explore interpersonal prediction recall accuracy.

## **1.8 Summary of Studies Conducted**

Six studies examining interpersonal affect forecasting for close friends are presented in this thesis. At the present time, there is no “gold standard” paradigm for

research in affective forecasting; forecasting studies involve over 50 different emotional stimuli and events (Hoerger, Chapman, et al., 2012). The early work in this area mainly looked at predictions of future feelings without follow up measures of experienced affect (see Wilson & Gilbert, 2003 for a review). Biphasic investigations (studies that examine both affect predictions and subsequent experiences) are relatively few as these studies are difficult to conduct. Often researchers have opted for a between-subject design with different groups for predictors and experiencers (Hoerger et al., 2010). It seems that only 14 of the 70+ forecasting studies conducted used a repeated-measures design with the same participants making predictions and reporting their experiences (M. Mathieu, & S. Gosling, personal communication, January 27, 2010 as cited in Hoerger et al., 2010). The studies presented in this thesis mostly use a biphasic repeated-measures design (Studies 1-3 and 6). Studies 4 and 5 were conducted to verify certain effects of the first three and assessed only affect predictions (and not subsequently experienced affect) using between-participants designs.

Study 1 used a standardised event experienced by pairs of friends to investigate interpersonal predictions. The study asked participants to forecast their own and their friend's emotional reactions to good and poor performance on a reasoning test (the Remote Associates Test) that they subsequently completed (similar to Pollmann and Finkenauer's, 2009, studies). This study incorporated a between-participants manipulation of implicit theories of emotion and analysed the recall of previous affect predictions.

Study 2 was designed to be similar to Study 1 but did not include the implicit theories of emotion manipulation (and limited the test feedback to solely negative feedback). Instead, Study 2 varied the times at which participants made emotion predictions (either one week before the study session or at the beginning of the session thus creating a delay between predictions and experiences for one condition) to investigate its impact on the recall of previous affect predictions. This study sought to verify findings from Study 1 and to further assess prediction recall by increasing the time between predictions and recall of predictions.

Unlike the first two laboratory-based studies, Study 3 assessed students' predictions of their and their friends' emotional responses to actual examination results they were about to receive. It compared affect predictions made by participants knowledgeable about the impact bias and its mechanisms to those made by their friends who were unaware of the bias. It also assessed affect predictions for multiple future time points.

Study 4 considered the influence of providing different types of information about the impact bias by comparing affect predictions made after reading online vignettes. This study sought to confirm whether participants in Study 3 might be discounting the information presented to them about the impact bias due to concerns about applicability. The study considered the debiasing effects of specific and general information on individual and interpersonal affect predictions for self-selected negative events.

Study 5 considered self-other differences in affect predictions between participants in an online study. The goal of this study was to verify if self-predictions and friend-predictions differed from one another when made independently and determine whether the use of a within-subject or between-subject design affected results. Participants predicted either their own or their friend's affective reactions to self-selected negative events.

Study 6 assessed the role of focalism, and, to a lesser extent, immune neglect in interpersonal affective predictions for real-world events. The study made use of online event-contingent entries completed by participants and their friends who made affect predictions and reported affect reactions for self-identified positive and negative events. The study manipulated focalism between participants, and verified whether the perception of recovery from negative emotion-laden events was related to prediction accuracy.

## Chapter 2

### **Study 1: The Influence of Implicit Theories of Emotion on Impact Bias**

#### **2.0 Abstract**

This study used an experimental design to examine the effects of manipulated beliefs about implicit theories of emotion on individual and interpersonal affective forecasting. Participants were primed with theories that emotions were malleable (incremental condition) or fixed (entity condition) before predicting their affective reactions and those of a close friend (study partner) to receiving positive and negative feedback on a test of reasoning skills. Subsequently, participants completed the test and rated their experienced affective reactions to either positive or negative feedback test performance. Participants predicted that their own feelings and those of their friend would be more pleasant than they actually were for positive feedback and more unpleasant than they actually were for negative feedback (with the exception of predictions of calm feelings for friends). Impact bias was not affected by the implicit theories of emotion manipulation. Recalled affect predictions were also not affected by the manipulation, but did differ from original affect predictions and were not influenced by experienced affect.

#### **2.1 Introduction**

The present study aimed to investigate the role that implicit theories of emotion play in interpersonal affective forecasting and the recall of affective predictions. The

study assessed the influence that individuals' emotion beliefs have on affective prediction accuracy using a standardised event experienced by all participants and assessed participants' recall of their affective predictions. This introduction reviews the relevant literature on expected self-other differences in affective predictions, on interpersonal affect forecasting, and on emotion and memory in affective forecasting. It further discusses the use of a performance test and sets forth the hypotheses tested in the study.

### *Self-other differences in affective forecasting*

As previously discussed in Chapter 1, self-other differences in affect predictions were expected due to the social comparison differences in the perception of emotional intensity, additional perspective taking, and possible incorporation of the recognition of others' coping strategies. Research has shown that people often consider their own affective experiences as more intense than others' affective experiences (Chambers & Suls, 2007; Miller & McFarland, 1987). This emotion intensity bias is explained by the premise that people have direct access to their own affective experiences, but indirect access to others'. Additionally, this indirect information about others' emotions from observable emotion displays may be limited as people can mask underlying feelings (Chambers & Suls, 2007). If people believe that their own affective experiences are more intense, then predictions of others' future affect should be more conservative than self-predictions, and less prone to the overestimation of subsequent actual affect. Thus forecasts made for friends may be more accurate due to this egocentric bias (White & Van Boven, 2012).

Additionally, considering another's affective experiences may be more complicated than considering one's own emotional reactions to future events. Estimating future affect for another person requires one to additionally consider another person's perspective. Considering another person's different emotional perceptions, alternate beliefs about situations, and/or situational preferences may reduce the focus on the target event. On the other hand, judgements for friends may be similar to individual predictions and, as a result, just as susceptible to focalism. One way in which people may make interpersonal judgements is by considering their personal experience in the circumstances in question and then adjusting these judgements based on what they know about the other person. Projection of personal affect has been thought to be implicated in affect forecasting (Igou, 2008; Van Boven & Loewenstein, 2003). For predictions of others' reactions, Van Boven and Loewenstein contend that people first consider their own reactions and subsequently make a new judgement for others' reactions by moderating their initial self-predictions to accommodate any differences between themselves and others (Van Boven & Loewenstein, 2005). As such, personal errors due to focalism might be extended to others, but this may depend upon differences they perceive between themselves and their friends. If participants believe that they are different from their friends, then by Van Boven and Loewenstein's logic, the case can be made that emotion predictions for themselves and their friends will differ. If participants believe that they are different from most people, then a "false uniqueness" (Suls & Wan, 1987) effect could account for differences between individual and interpersonal forecasts. In this

sense, a more extreme view of one's own affect would be held and could be explained by a motivational interpretation. Individuals who believe that they experience emotions uniquely would not have similar self-predictions and social-predictions as self-beliefs and beliefs about one's emotional reactions would not be projected onto others.

Self-other effects could also be due to immune neglect (or the coping fallacy) which involves individuals ignoring their psychological immune systems (coping mechanisms) that serve to ameliorate affective reactions to negative events. Immune neglect has been examined in the context of rationalising source differences (Gilbert et al., 1998), different coping styles (Hoerger et al., 2009), and different cognitive processes (Hoerger et al., 2010) which implicate emotional reactions but not predictions (Hoerger, 2012). However, it is not clear whether corresponding processes (neglect of others' immune systems) would influence the prediction of others' affect. Firstly, Gilbert and colleagues (1998) contend that people are more aware of other peoples' psychological immune system than they are of their own. People are said to be able to spot how others rationalise away failures or disappointments to avoid negative feelings almost instantaneously, but are unaware that they likewise engage in the same rationalising efforts (Gilbert et al., 1998). Secondly, recognising coping mechanisms in others may be easier as people attenuate their own emotional reactions (often without much consideration) but find others' emotional reactions (and their deliberation) less familiar. Thus, people may have more experience speculating about others' motives or rationales for emotional reactions compared to speculating about their own emotional reactions. It is

therefore expected that the perception of immune neglect for self and for friend will differ and friend forecasts will be affected to a lesser extent by immune neglect.

### *Interpersonal affective forecasting*

While there has been much work on individual affective forecasting, there has been very limited work on interpersonal affective forecasting. At the moment, Pollmann and Finkenauer's work (2009) is the only biphasic investigation using a dyadic design in the affective forecasting literature. Pollmann and Finkenauer (2009) predicted that people would be biased when making interpersonal (empathic) forecasts but to a lesser extent than when making individual affective forecasts. In three studies, they asked students to forecast their own reactions and the reactions of friends and strangers to receiving positive or negative feedback on an exam that the students subsequently completed. Pollmann and Finkenauer found that interpersonal forecasts were closely correlated to individual forecasts and equally biased; self-predictions and predictions for close friends both were of greater emotional intensity than reported emotional experience. However, contrary to the investigators' expectations, they did not observe a less pronounced impact bias for affective forecasts made for others. The researchers proposed that people may have personalised knowledge about their friends which would lead them to make predictions similar to their own predictions; however, this proposition was not supported by the finding that forecast accuracy did not depend on how long participants had known one another or on relationship satisfaction. Further, their final two studies found no differences between the forecasts made for friends and those made for strangers. The

researchers speculated that the similarity between individual and interpersonal forecasts may be due to projection or basing forecasts on the same intuitive theory of people's typical emotional reactions that is used for self-predictions.

In addition to having seemingly unexpected findings, Pollmann and Finkenauer's study had several limitations which could explain why they did not find differences between self-forecasts and friend forecasts. The first potential problem is the failure to control for the order of forecasts. After their first study, the researchers stopped controlling for the order of forecasts, and affective forecasts for own feelings were always made before forecasts for others in Studies 2 and 3. Arguably, participants' consideration of their own views first could be used as an explicit anchor or reference point when making predictions for others under these circumstances. Counterbalancing for order may allow for differences in friend and individual forecasts. Another potential problem is the number of forecasts the participants were required to make which were greater in number compared to previous affective forecasting studies and may have affected participants' responses. The researchers asked participants to forecast their own and their friend's reactions to eight scenarios for eight different emotions on 7-point scales (totalling 128 forecasts). Only one scenario was relevant to the upcoming task. In fact, the researchers reported that it was not possible to calculate across-item correlation for some responders (approximately 15 percent of their sample) because they gave the same response to every item, suggesting that participant fatigue may have reduced their level of attention to, and engagement with, the task of prediction. Thus, it may be that

fewer emotion items and scenarios (and thus less participant fatigue) would provide for more varied and ecologically valid results. Finally, Pollmann and Finkenauer treated each case as independent when analysing data despite the possible non-independence of self and friend when making predictions of each others' reactions. Although the investigators statistically assessed correlations, null results cannot conclusively establish a lack of relation.

### *Emotion in affective forecasting*

As discussed in Chapter 1, affect regulation is thought to play a role in affective forecasting, although until recently, direct investigation was surprisingly limited (Loewenstein, 2007). Specifically, research had not investigated beliefs about the effectiveness of various regulation strategies, and Loewenstein's (2007) survey therefore addressed this question. Nevertheless, no published study (not even Loewenstein's) has yet considered beliefs about the effectiveness of emotion-regulation strategies as a possible moderator of forecasting accuracy. The most closely related research has investigated emotion intelligence and affective forecasting. Emotional intelligence encompasses emotion regulation in addition to the abilities to perceive, use, and understand emotions (Mayer & Salovey, 1997). Dunn and colleagues' (2007) study directly assessed the connection between emotional intelligence and affective forecasting, and found that one facet of emotional intelligence, emotional management, a component of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2002), was associated with better forecasting. According to Dunn et al. (2007), those with high

emotion-management ability consider how events can be mitigated by internal and external factors and recognise how positive and negative emotions can be altered (reinforced, minimised, and maintained). In a sense, emotion management can be seen to be related to greater awareness of emotion regulation and most likely a belief that emotions can be changed and controlled. Emotion management can also be related to a greater awareness of the psychological immune system (or coping mechanisms) and, therefore, less immune neglect. More recently, Hoerger, Chapman, et al. (2012) conducted two studies that demonstrated that emotional intelligence was associated with enhanced forecasting accuracy and with better memory for affective reactions. Their first study demonstrated that emotion intelligence measures were correlated with prediction accuracy when controlling for cognitive functioning. Their second study was novel in that it implicated a link with memory processes. They demonstrated that memory processes (particularly consolidation) explained 72% of the association between emotion intelligence and improved forecasting. The results of these past studies are noteworthy; however, emotion intelligence is a broad and multidimensional measure, and research on more targeted implicit theories of emotion would extend research on affective forecasting.

If emotion regulation and certain aspects of emotional intelligence involve underlying personal beliefs that emotions can be changed and controlled, implicit theories of emotion could also be involved in affective forecasting. In the present study, as a relevant and practical measure, the Implicit Theories of Emotion Scale (ITES; Tamir et

al., 2007) was chosen as a theoretically meaningful manner to distinguish the individuals within dyad pairs and to investigate whether these beliefs would influence future affect predictions. Tamir et al. (2007) reported that there are individual differences in implicit theories of emotion linked to emotional and social adjustment and emotion regulation. Those who believed they could control and change their emotions were more effective in doing so. They found that some people view emotions as fixed, not controllable or changeable (entity theorists) while others view them as malleable, controllable and changeable (incremental theorists). The participants who viewed emotions in an incremental manner believed that they had a greater ability to successfully regulate their emotions and more often made use of cognitive reappraisal as an emotion-regulation strategy. In terms of affective forecasting, it may be possible that highlighting the controllability and changeability of emotions (and thus emotion regulation strategies) could reduce immune neglect and as such reduce a misestimation of future affect.

The present study not only measured but also manipulated implicit theories of emotion permitting the assessment of any causal effects demonstrating the influence of implicit theories of emotion on affect predictions, reported affect, and/or forecasting accuracy. Participants were given information either about incremental theories of emotion (the malleability of emotions) or entity theories of emotion (the fixed nature of emotions) and asked to think about recent past events in these terms, and then asked to write about them. It was predicted that participants given information about incremental views and asked to think in incremental terms about past emotional events would be more

accurate in their predictions of emotion responses to positive and negative test feedback compared to those given information supporting entity views of emotions and asked to think of past occurrences in entity terms. More specifically, the underestimation of effects of affect regulation implied by the idea of immune neglect should be greater if emotions are presented as uncontrollable. Conversely, if emotions are presented as controllable, it is likely that it would highlight the use of emotion regulation, and predictions would be more conservative (and as such more accurate). In other words, reduced forecasting bias in the incremental theories of emotion condition is consistent with the idea that bias depends on immune neglect. There is also the possibility that the implicit emotion theory manipulation might differentially affect participants based on their previous beliefs resulting in an interaction between these variables.

#### *Memory in affective forecasting*

Perhaps unsurprisingly, the ability to recall both past emotion predictions and past experiences is also poor (Meyvis et al., 2010; Wilson et al., 2003, Study 2). People often misreport their affective experiences as consistent with their predictions regardless of their actual nature (Mitchell, Thompson, Peterson, & Cronk, 1997). Even when the recall of their experiences is accurate, individuals often do not adjust future affect predictions and instead rely on their original beliefs about future emotions (Novemsky & Ratner, 2003; Wilson, Meyers, & Gilbert, 2001). In addition to failing to factor in correctly recalled false predictions, misremembering previous predictions can also circumvent the possibility of learning to make more accurate predictions on the basis of experience.

Research has found that people tend to remember past predictions as closer to their affective experiences than to their actual past predictions (Meyvis et al., 2010). Meyvis and his colleagues propose that individuals fail to recognise their errors in predictions and consequently do not revise their intuitive theories when making new predictions. As recall of past predictions has not been investigated for interpersonal affective forecasting, the present study included questions about participants' prediction recall. Recalled individual predictions should differ from their initial individual predictions in the direction of their ratings for the affective experience which individuals themselves have just experienced. As participants do not directly experience their friend's reaction to feedback (and are given no opportunity to discuss it with their friend), there should be less of a difference between their recall for their friend's predictions and their original prediction for their friend's affect compared to the difference between their recalled individual affect prediction and their original affect individual prediction. It was also important to assess whether recalled individual and interpersonal predictions are affected by participants' affective reactions to these events.

### *Methods*

The study conducted made use of a biphasic design. Biphasic studies, ones in which the same participants provide both predictions of future affect and report experienced affect after events, are relatively few compared to those that only assess forecasts or use different groups of participants as 'predictors' and 'experiencers' because of the difficulty in conducting biphasic studies (Hoerger et al., 2010). Hoerger et al.

(2010) do not explicitly clarify the nature of the “difficulty” in conducting biphasic studies but the difficulty may involve recruitment, attrition, and logistical issues. Biphasic studies are important because looking solely at forecasts does not permit assessment of participants’ accuracy levels and comparing accuracy between different groups does not allow for explorations of individual differences.

Data from the present study were analysed using dyadic methods. A dyadic design takes into account that the data are not statistically independent; predictions for oneself are compared to self experiences and to predictions from another person (Person 1’s prediction compared to Person 1’s experience and Person 2’s prediction for Person 1 compared to Person 1’s experience) and vice versa. Because of the study’s sample size and issues of nonindependence, the dyad was used as the unit of analysis in line with recommendations by Kenny, Kashy, and Cook (2006). The Analysis of Variance (ANOVA) approach was opted for due to the sample size and data points gathered, and because the significance tests are exact whereas they would only be approximated in a multilevel analysis (Kenny et al., 2006).

The individuals within the dyad were distinguished by their scores on the ITES. The individual with the higher numerical score on this scale of the pair was designated the “higher entity ITE” person of the pair, and individual with the lower score of the pair, the “lower entity ITE” person. While higher scores on the scale indicate that participants possess more entity (fixed) theories of emotion and lower scores, more incremental (malleable) theories, the difference between the persons of the pair on this measure is not

statistically significant. There were neither categorically “high” versus “low” scorers on this measure nor “entity” versus “incremental” theorists within the pairs.

#### *Use of a performance test*

In order to standardise the events that participants made predictions about, the present study asked students to make predictions about their emotional reactions to positive or negative test outcomes. Past research has been conducted on affective predictions of scholastic test results demonstrating the classic impact bias (Buehler & McFarland, 2001). The Remote Associates Test (RAT) was used for performance feedback in the present study in order to permit comparisons with Pollmann and Finkenauer’s (2009) work on interpersonal affective forecasting which used the same test. The RAT is a test that has been adapted for various psychology studies investigating topics such as reasoning and creativity. The use of the RAT minimises deception of participants by allowing the performance manipulation to be truthful and credible (McFarlin & Blascovich, 1984). Each RAT item consists of three stimulus words that are related to a fourth unreported word that the participant needs to provide. The feedback participants are given then corresponds to their performance as they are given either an easy or difficult version of the test.

#### *Hypotheses summary*

I predicted that friend forecasts would differ from individual forecasts due to differences in the perception of emotional intensity, perspective taking, and recognition of others’ coping strategies (less immune neglect). Specifically, friend predictions should

differ from individual predictions for negative feedback with higher levels of positive and calm feelings (less negative affect) predicted for friend compared to the self (i.e., less impact bias for friend than for self). In accordance with the classic impact bias, differences between affective predictions and experiences were hypothesised. It was expected that predictions (individual and from friend) would differ from reported experiences for both positive and negative feedback, with higher levels of positive and negative feelings for predictions respectively. Reasoning that those with greater perceived control over emotions would have more insight into their own and others' emotions and less immune neglect, I also predicted that those primed with beliefs that emotions are malleable would be more accurate in their affective predictions to receiving positive and negative feedback. I hypothesised that predictions (individual and from friend) would exhibit a smaller difference from reported experience in the incremental ITE condition compared to the entity ITE condition. Lastly, as people tend to remember past predictions as closer to their affective experiences than past predictions (Meyvis et al., 2010), recalled predictions were hypothesised to be more similar to affective experiences and different from previous predictions for self than for friend. There were no expected effects depending on within-pair differences in prior implicit theories of emotion.

## **2.2 Method**

### **2.2.1 Participants**

Eighty participants (50 females, 30 males) completed the study in 40 same-gender friend dyads (Mean age = 20.23 years, *SD* = 2.43). Participants were recruited through flyers, local online adverts, and department email lists asking for pairs of same-gender friends. Mean duration of study partners' friendship was 24.68 months (*SD* = 24.63). Data from an additional dyad were discarded because one of the participants did not comply with study instructions. Participants were paid up to £8 or received course credit for their participation.

### **2.2.2 Design**

The study used a 3 x 2 x 2 x 2 mixed design ANOVA with Prediction/Experience (friend's prediction vs. self-prediction vs. self experience) and Person (pre-study lower vs. pre-study higher entity ITE) as repeated measures (or within-dyad factors) and Implicit Theories of Emotion (ITE) Condition (incremental vs. entity) and Feedback Condition (positive feedback vs. negative feedback) as between-dyad factors.

### **2.2.3 Measures<sup>1</sup>**

During the study, the participants were asked to complete pre-test and post-test questionnaires including the following measures. Affect scales were created to capture the broad range of emotional responses possible for receiving performance test feedback. I used four unipolar scales based in part on the UWIST Mood Adjective Checklist (UMACL; Matthews, Jones, & Chamberlain, 1990).

---

<sup>1</sup> The measures described in this section are those most relevant to the study. Other measures were included for exploratory purposes but are not reported here. Appendix A includes the measures described in the study.

*Baseline affect.* At the beginning of the lab session (and before the test was completed), participants were asked to rate their current (baseline) mood (“*How positive (negative, calm, anxious) are you feeling at this moment?*”) using a 7-point scale running from *Not at all* (1) to *Extremely* (7).

*Predicted affect.* Predicted affect was measured by ratings of forecasted emotions, (“*How positive (negative, calm, anxious) do YOU expect (YOUR FRIEND) to feel following good (bad) performance on a test of your (their) reasoning abilities?*”) on a similar 7-point scale. Reporting order (self, friend) and forecasted feedback valence (good, bad) were counterbalanced across pairs of participants (same within pairs).

*Experienced affect.* Reported experience was measured following the test by asking, “*How positive (negative, calm, anxious) are you feeling at this moment?*” on a similar 7-point scale.

*Recalled affect.* Recalled affect was measured next by asking, “*What did you rate previously for: How positive (negative, calm, anxious) do YOU expect (YOUR FRIEND) to feel following good (bad) performance on a test of your (their) reasoning abilities?*” on a similar 7- point scale.

*Implicit theories of emotion.* Participants completed the Implicit Theories of Emotion Scale (ITES; Tamir et al., 2007) which measures implicit beliefs about emotions. ITES consists of two incremental items (“*Everyone can learn to control their emotions*” and “*If they want to, people can change the emotions that they have.*”) and two entity items (“*No matter how hard they try, people can’t really change the emotions*

*that they have*” and “*The truth is, people have very little control over their emotions.*”) each measured on a 7-point scale (1 = *Strongly Agree*, 7 = *Strongly Disagree*). The entity items were reverse-coded. Higher scores indicated that participants possess more entity (fixed) theories of emotion and lower scores indicated they possess more incremental (malleable) theories of emotion. This measure was completed at two time points: at home before the study and towards the end of the lab session. Cronbach’s  $\alpha$  was .77 for the current sample at home and .85 after the study.

#### **2.2.4 Procedure and Materials**

Participants were asked to complete an initial questionnaire administered online at home before the session was to take place using Qualtrics (<http://www.qualtrics.com/>). Qualtrics is an independent company that hosts web-based surveys. Participants were told the study would involve reporting on their and their friend’s emotions and that they would both be taking a brief test of reasoning skills. There was minor deception involved (approved by Oxford’s Central University Research Ethics Committee (CUREC)) as participants were told that emotions are experienced in a certain (biased) manner. Additionally, success on the reasoning test was manipulated through different versions of the test. Participants came together to the session, but completed the study individually on computers (in separate cubicles). They did not see or interact with their partners at any point during the study. Upon arrival for the session, each pair of participants was randomly assigned to one of two conditions. In the incremental theories of emotions condition, participants viewed results that indicated that people tend to experience

emotions as malleable, and were asked to imagine and describe three recent situations in which they could completely control their emotions (*“Vividly imagine three recent situations in which you could completely control your emotion/s. Take 2-5 minutes to describe the scenarios.”*). In the entity theories of emotion condition, participants viewed results that indicated that people tend to experience emotions as fixed and were asked to imagine and describe three recent situations in which they could not completely control their emotions (*“Vividly imagine three recent situations in which you could not completely control your emotion/s. Take 2-5 minutes to describe the scenarios.”* See Appendix B for condition primes). Participants were then asked to make affective predictions for themselves and their friend for their performance on a reasoning test (they had been previously informed that they would be taking a reasoning test during the session). After the forecasts, participants completed the Remote Associates Test (RAT; McFarlin & Blascovich, 1984), which they were told was a test of reasoning abilities (see Appendix C for the RAT versions used). Half of the participant pairs received an easy RAT version resulting in positive feedback; they were informed that they had performed above average on this test as compared to the other participants. Half were given a difficult RAT version resulting in negative feedback; they were told that they had performed below average on this test as compared to the other participants. Afterwards, participants recorded their current mood (experienced affect) and completed the post-test ITES. The study concluded by asking participants to recall their previous ratings of affective predictions for themselves and their friend (prediction recall). The participants

were then debriefed and told that the information given to them at the beginning of the study (about how people experience emotions) was biased and that their own scores on the RAT were experimentally manipulated.

## **2.3 Results**

### **2.3.1 Measure Composites**

Positive feelings predicted for self (friend) were all significantly inversely correlated with negative feelings predicted for self (friend) following good performance and poor performance on a test of reasoning abilities, for baseline affect prior to these predictions, and for reported experience following the test,  $r(78) = -.29$  to  $r(78) = -.73$ , all  $ps < .01$ . Likewise, (with one exception<sup>2</sup>) calm feelings were significantly inversely correlated with anxious feelings for these measures,  $r(78) = -.34$  to  $r(78) = -.61$ , all  $ps < .01$ . For clarity of reporting, positivity and negativity ratings, and calm and anxious ratings were combined after appropriate reverse coding of items so that higher scores indicated either more positive or calmer feelings.

### **2.3.2 Manipulation Checks**

#### **2.3.2.1 Implicit Theories of Emotion**

To evaluate whether implicit theories of emotion differed by condition, a mixed design ANOVA was conducted with Person (pre-study lower vs. pre-study higher entity

---

<sup>2</sup> Predictions for calm and anxious feelings following good performance for oneself showed a small but non-significant negative correlation,  $r(78) = -.09$ ,  $p = .427$ .

ITE) and Time of Measurement (pre-study vs. post-study) as repeated measures factors and Implicit Theories of Emotion Condition (incremental vs. entity) and Feedback Condition (positive feedback vs. negative feedback) as between-subject factors. Unsurprisingly, there was a main effect of Person,  $F(1, 36) = 87.14, p < .001, \eta^2 = .71$ . The person in the pair classified as having higher entity ITE did have higher entity ITE pre- and post-study ( $M = 4.20, SD = 0.90$ ) compared to the person classified as having lower entity ITE ( $M = 2.93, SD = 0.83$ ). The predicted interaction between Time of Measurement and Implicit Theories of Emotion Condition was significant,  $F(1, 36) = 5.41, p = .026, \eta^2 = .13$ . Simple main effects analysis demonstrated that post scores were significantly different by condition, the incremental condition had lower entity views post-study ( $M = 3.28, SD = 0.71$ ) compared to the entity condition views post-study ( $M = 3.84, SD = 0.88$ ),  $F(1, 36) = 5.31, p = .027, \eta^2 = .13$ . The scores pre-study did not significantly differ by condition. None of the other effects were significant. The manipulation thus succeeded in creating a distinguishable difference between conditions on the intended measure.

### **2.3.2.2 Effect of RAT Test Feedback on Reported Affect**

A similar ANOVA was conducted to check whether participants' ratings of positive and calm feelings changed over time as a function of feedback of performance on the RAT test. In this analysis, T1 on the time of measurement factor was prior to taking the RAT test, and T2 was after receiving feedback on that test.

For positive feelings, there was a significant main effect of Feedback,  $F(1, 36) = 22.58, p < .001, \eta^2 = .39$ . As expected, ratings were more positive in the positive feedback condition ( $M = 5.23, SD = 0.55$ ) than in the negative feedback condition ( $M = 4.36, SD = 0.60$ ). There was also a main effect of Time of Measurement,  $F(1, 36) = 4.75, p = .036, \eta^2 = .12$ , which demonstrated that ratings were more positive at T1 ( $M = 4.95, SD = 0.74$ ) than at T2 ( $M = 4.64, SD = 1.09$ ). Both these main effects were qualified by the hypothesised significant interaction between Feedback and Time of Measurement,  $F(1, 36) = 30.17, p < .001, \eta^2 = .46$ . Decomposing this interaction, simple main effects analysis demonstrated that post-test ratings differed by Feedback with higher positive ratings following positive feedback ( $M = 5.46, SD = 0.61$ ) than following negative feedback ( $M = 3.81, SD = 0.79$ ),  $F(1, 36) = 52.94, p < .001, \eta^2 = .60$ . Further, T2 ratings were significantly more positive ( $M = 5.46, SD = 0.61$ ) than T1 ratings ( $M = 4.99, SD = 0.92$ ) following positive feedback,  $F(1, 36) = 5.49, p = .025, \eta^2 = .13$ , and T2 ratings were significantly less positive ( $M = 3.81, SD = 0.79$ ) than T1 ratings ( $M = 4.91, SD = 0.53$ ) following negative feedback,  $F(1, 36) = 29.43, p < .001, \eta^2 = .45$ . There were no further significant interactions involving the feedback manipulation and there were no significant results for calm feelings. As such, the feedback manipulation succeeded in altering positive and negative feelings (as in Pollmann & Finkenauer, 2009), but did not affect calm and anxious feelings.

### **2.3.3 Forecast Bias**

#### **2.3.3.1 Predictions and Experiences**

To assess whether the manipulations influenced the accuracy of predictions and experiences, ratings of positive and calm feelings were subjected to a 3 x 2 x 2 x 2 mixed design ANOVA with Prediction/Experience (friend's prediction vs. self-prediction vs. self experience) and Person (lower vs. higher entity ITE) as repeated measures (within-subject or within-dyad) factors and Implicit Theories of Emotion Condition (incremental vs. entity) and Feedback Condition (positive feedback vs. negative feedback) as between-dyad factors.

Analyses of variance conducted for positive feelings yielded a main effect of Feedback Condition,  $F(1, 36) = 217.20, p < .001, \eta^2 = .86$ . Higher positive feelings (aggregated across predictions and experiences) were found in the positive-feedback condition ( $M = 5.65, SD = 0.50$ ) than in the negative-feedback condition ( $M = 3.27, SD = 0.54$ ). Likewise, calm feelings demonstrated a main effect of Feedback Condition,  $F(1, 36) = 14.91, p < .001, \eta^2 = .29$ , with higher calm feelings (predictions and experiences) in the positive-feedback condition ( $M = 5.23, SD = 0.61$ ) than in the negative-feedback condition ( $M = 4.42, SD = 0.77$ ).

More interestingly, an interaction between Predictions/Experiences and Feedback Condition was found for positive feelings,  $F(2, 72) = 12.60, p < .001, \eta^2 = .26$ . Comparisons demonstrated that in the negative-feedback condition, friends' predictions of positive feelings and participants' self-predictions were each significantly lower than reported experience (see Figure 2.1). In the positive-feedback condition, friends' predictions of positive feelings and participants' self-predictions were each higher than

reported experience, but this effect was only significant for self-predictions. In neither condition were self-predictions significantly different from friends' predictions.

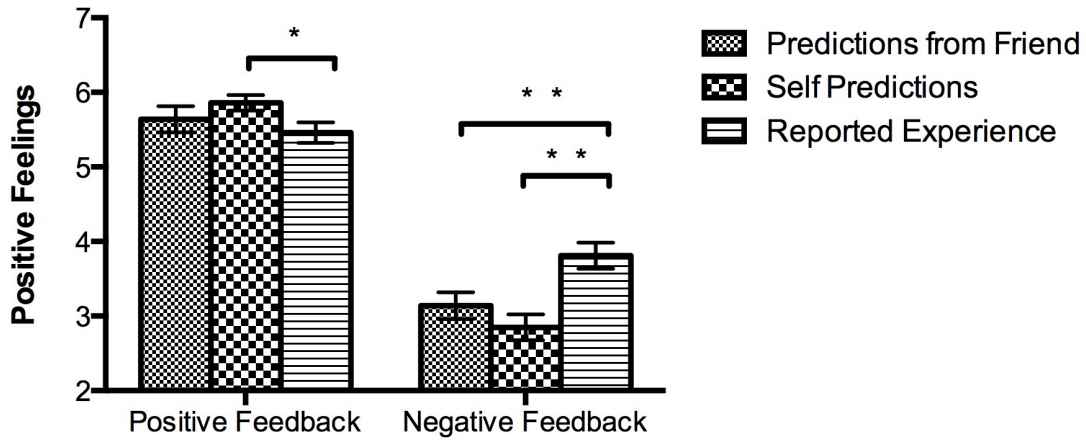


Figure 2.1. Interactive effect of feedback condition and predictions/experiences on ratings of positive feelings. Higher ratings indicate more positive feelings, lower ratings indicate more negative feelings. Error bars indicate the standard error of the mean (SEM). \* $p < 0.05$ . \*\* $p < 0.01$ .

Ratings of calm feelings were also affected by a significant interaction between Predictions/Experiences and Feedback Condition,  $F(2, 72) = 3.75, p = .028, \eta^2 = .09$ . Comparisons demonstrated that in the negative-feedback condition, friends' predictions of calm feelings and participants' self-predictions were each significantly lower than reported experience (see Figure 2.2). In the positive-feedback condition, participants' self-predictions of calm feelings were higher than reported experience, but friends' predictions were lower than reported experience.

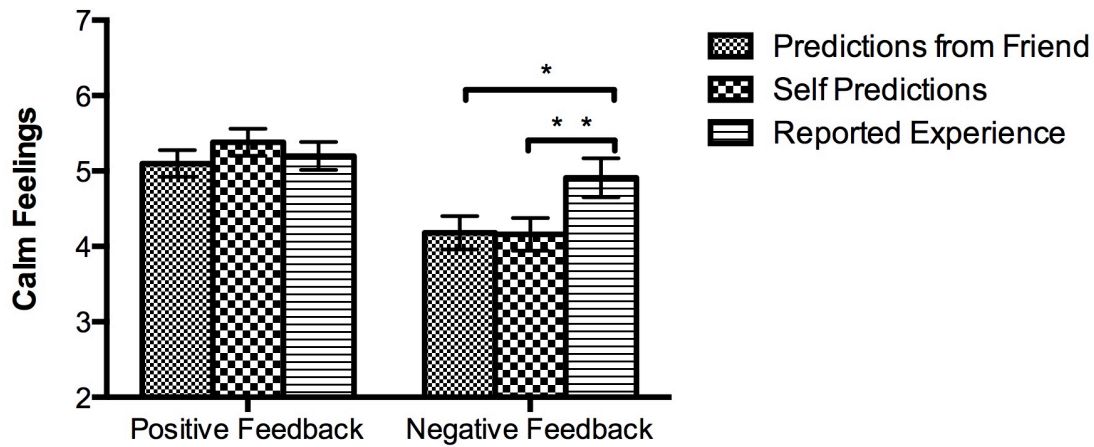


Figure 2.2. Interactive effect of feedback condition and predictions/experiences on ratings of calm feelings. Higher ratings indicate more calm feelings, lower ratings indicate more anxious feelings. Error bars indicate SEM. \* $p < 0.05$ . \*\* $p < 0.01$ .

A significant interaction was found between Feedback Condition and ITE Condition for ratings of calm feelings,  $F(1, 36) = 5.70, p = .022, \eta^2 = .14$ . Comparisons demonstrated that in the incremental condition, those in the negative-feedback condition had significantly lower calm scores than those in the positive-feedback condition,  $F(1, 36) = 19.53, p < .001, \eta^2 = .35$ . Those in the entity condition also had lower calm scores in the negative-feedback condition, but the differences fell short of significance (see Figure 2.3).

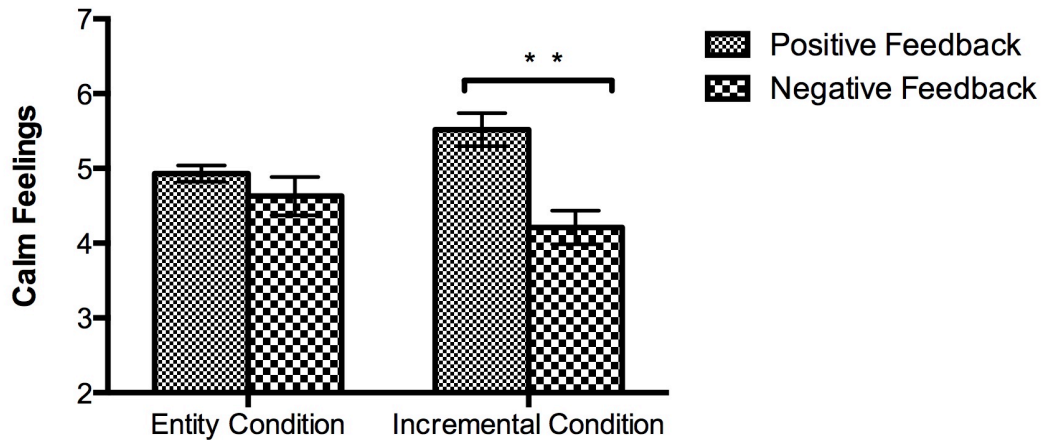


Figure 2.3. Interactive effect of feedback condition and implicit theories of emotion (ITE) condition on ratings of calm feelings. Higher ratings indicate more calm feelings, lower ratings indicate more anxious feelings. Error bars indicate SEM. \* $p < 0.05$ . \*\* $p < 0.01$ .

This two-way interaction between Feedback Condition and ITE Condition was qualified by a significant three-way interaction between Person, Feedback Condition, and ITE Condition,  $F(2, 72) = 4.23, p = .047, \eta^2 = .11$ . As shown in Figures 2.4a and 2.4b, the previously reported 2-way interaction between Feedback Condition and ITE Condition is more pronounced for the participant higher in entity ITE, for whom there was no effect of feedback on calmness in the entity condition (only in the incremental condition). By contrast, the participant lower in entity ITE showed more pronounced differences in calmness in the entity condition. An additional ANOVA conducted separately for each person of the pair confirmed that the two-way interaction was significant for the participant with higher entity ITE,  $F(1, 36) = 8.11, p = .007, \eta^2 = .18$ , but not for the person with lower entity ITE,  $F(1, 36) = 0.94, p = .339, \eta^2 = .03$ .

Person: Higher Entity Implicit Theories of Emotion (ITE)

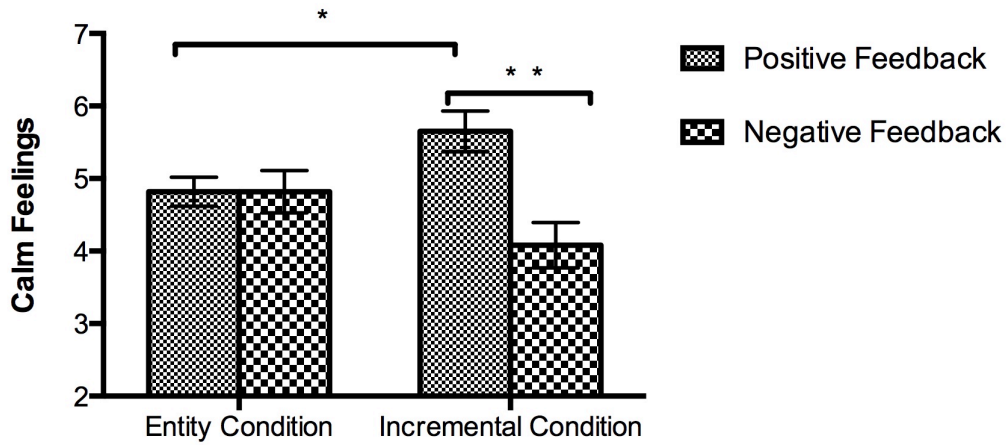


Figure 2.4a. Interactive effect of feedback condition, ITE condition, and person on ratings of calm feelings. Higher ratings indicate more calm feelings, lower ratings indicate more anxious feelings. Error bars indicate SEM.  $*p < 0.05$ .  $**p < 0.01$ .

Person: Lower Entity ITE

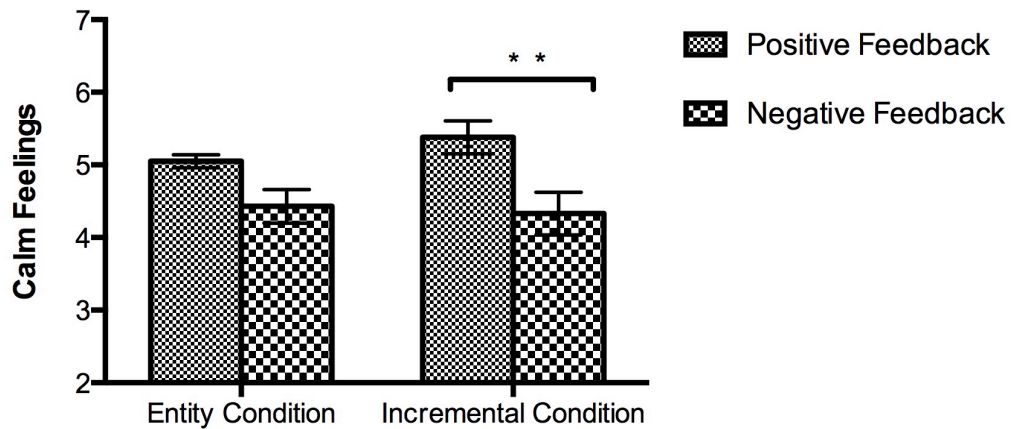


Figure 2.4b. Interactive effect of feedback condition, ITE condition, and person on ratings of calm feelings. Higher ratings indicate more calm feelings, lower ratings indicate more anxious feelings. Error bars indicate SEM.  $*p < 0.05$ .  $**p < 0.01$ .

### 2.3.4 Prediction recall

#### Predictions and Recalled Predictions

Predictions of positive and calm feelings were each subjected to a 2 x 2 x 2 x 2 x 2 x 2 mixed design ANOVA with Person (lower vs. higher entity ITE), Target (self vs. friend), Valence of Predictions (good performance vs. poor performance), and Prediction Time (original vs. recall) as repeated-measures factors and Implicit Theories of Emotion Condition (incremental vs. entity) and Feedback Condition (positive feedback vs. negative feedback) as between-dyad factors.

For predictions of positive feelings, there was an interaction between Valence of Predictions and Prediction Time,  $F(1, 36) = 14.70$ ,  $p < .001$ ,  $\eta^2 = .29$ , with original predictions of positive feelings ( $M = 5.82$ ,  $SD = 0.51$ ) rated significantly higher compared to recalled predictions ( $M = 5.62$ ,  $SD = 0.47$ ) for good performance, and original predictions of positive feelings ( $M = 3.04$ ,  $SD = 0.75$ ) rated significantly lower compared to recalled predictions ( $M = 3.24$ ,  $SD = 0.74$ ) for poor performance.

Predictions of calm ratings also showed a corresponding interaction,  $F(1, 36) = 6.03$ ,  $p = .019$ ,  $\eta^2 = .14$ . However, subsequent comparisons did not demonstrate significant differences between original and recalled predictions in either good or poor performance conditions.

#### Correlation analysis

Further analysis run separately for each person of the pair revealed that recalled predictions of positive feelings for self and for friend were positively correlated with the

corresponding original predictions across all conditions,  $r(18) = .23$  to  $r(18) = .86$ , and all but two of the correlation coefficients were statistically significant,  $ps < .05$ .<sup>3</sup> Similarly, recalled predictions of calm feelings for self and for friend were significantly positively correlated with corresponding original predictions across all conditions,  $r(18) = .60$  to  $r(18) = .82$ , all  $ps < .01$ .

In order to test whether experienced affect was a factor in distorting memory for predictions, partial correlations were calculated between experienced affect and recalled prediction after controlling for original predictions for all conditions for both self and friend. All but one of these partial correlations was non-significant. In the negative-feedback condition, the person in the dyad with higher entity ITE experienced calm feelings showed a significant positive correlation with recalled prediction of friend's calm feelings, even after controlling for the original prediction for their friend,  $r(18) = .62$ ,  $p = .005$ .

## 2.4 Discussion

The aim of this study was to assess the role that implicit beliefs about emotion play in interpersonal affective forecasting and to evaluate whether recall of affective predictions is accurate for individual and interpersonal predictions. Previous research has

---

<sup>3</sup> While not reaching levels of significance, the person in the dyad with lower entity ITE's recalled predictions for positive feelings following poor performance for self (friend) were correlated with original predictions for self (friend),  $r(18) = .23$ ,  $p = .337$  ( $r(18) = .33$ ,  $p = .151$ ), and the person with higher entity ITE's recalled predictions for positive feelings following good performance for friend were correlated with original predictions for friend,  $r(18) = .35$ ,  $p = .135$ .

shown that affect-forecasting abilities are moderated by various factors (see Chapter 1 for a review) but has not specifically considered the effect of implicit theories of emotion. Additionally, Meyvis et al.'s (2010) misremembering theory (that learning from previous forecasting errors is prevented due to misremembering predictions) was assessed and extended to determine if it is applicable to predictions of affect made for others.

*Forecasting bias and implicit theories of emotion*

The present results contained evidence for the classic impact bias; participants predicted that their feelings would be more pleasant than they actually were for positive feedback and more unpleasant than they actually were for negative feedback. Similar biases applied to friend predictions; predictions made for friends were expected to be more pleasant and more unpleasant than they resulted in being (with the exception of predictions of calm feelings). Impact bias (for both self and friend predictions) was not affected by the implicit theories of emotion manipulation as expected. Additionally, there were no differences in prediction accuracy due to within-pair differences in pre-existing implicit emotion theories. In summary, predictions were mostly more extreme than actual experience, but this effect was not moderated by implicit theories of emotion or whether predictions concerned self or friend. Finally, memory for predictions for positive events indicated less positive predictions and memory for negative events indicated less negative predictions.

While differences in self and friend predictions were expected due to the emotional intensity bias, differences in perspective taking, and greater recognition of

others' coping strategies, the findings indicated that self and friend predictions were more similar to one another corresponding to Pollmann and Finkenauer's (2009) findings. They speculated that individual and empathic predictions may be similar due to being based on common knowledge of how people react to emotional events (intuitive theories; Igou, 2004) or projection of individual forecasts. Further research is needed to determine the contribution of intuitive theories and projection to related individual and interpersonal predictions. It should be noted that the similarity between individual and interpersonal predictions and impact bias has implications for recalled affective predictions. Namely, the similarity between self and friend forecasts and impact bias undermines the argument that personally experienced affect distorts recall for predictions and thus prevents learning to make accurate predictions. The recalled affect prediction results are discussed in the next section.

There were some unforeseen results for calm feelings that implicated implicit theories of emotion. The interaction between Feedback Condition and ITE Condition indicated that in the incremental condition, those in the negative-feedback condition had significantly lower calm scores than those in the positive-feedback condition. This effect was non-significant in the entity emotion beliefs condition. This two-way interaction was qualified by a three-way interaction between Person, Feedback Condition, and ITE Condition, demonstrating that the interaction was stronger for the participant with higher entity ITE. Indeed, there was no difference in calm ratings for positive and negative feedback in the entity ITE condition for this participant. These findings probably reflect

the combined effects of the ITE manipulation and pre-existing beliefs on perceptions of emotions resistance to change. Those participants who already had higher entity beliefs were led to believe that emotions were even less malleable following the manipulation and consequently concluded that their calmness would be unaffected by test feedback (and reported no differences in calmness in response to this feedback). This explanation is speculative and leaves open the question of why no corresponding effects applied to ratings of positivity. Perhaps calmness was seen as a more mood-related dimension than the pleasant or unpleasant reactions to good and bad news, and therefore perceived as more resistant to event-related effects. In any case, it is important to note that neither of these significant interactions involved impact bias and that the manipulation check demonstrated that calm feelings were not affected by the RAT test.

As mentioned, classic impact bias was found, and predictions were mostly more extreme than actual experience, but this effect was not moderated by participants' implicit theories of emotion. There were also no effects of within-pair differences in characteristic implicit theories of emotion. Future research should assess why some measures of emotion intelligence influence affective forecasting accuracy whilst other related measures such as implicit theories of emotion do not appear to. Additionally, further research is needed to investigate the similarities and distinctions between emotion intelligence and implicit theories of emotions.

*Recalled affect predictions*

Participants' recalled predictions were expected to be distorted by the affective experiences that individuals had just experienced in line with Meyvis et al.'s studies (2010). However, this was not demonstrated as participants' recalled predictions were not correlated with experienced affect when controlling for original predictions. Unlike in Meyvis et al.'s work (2010), participants did not consistently fail to recall their past predictions, and their actual experiences did not predominantly influence their recalled predictions. Interestingly, the recall for friend's predictions was related to the original prediction made for their friend as predicted.

A closer review of the results demonstrates that original predictions of positive feelings were rated higher for good performance and lower for poor performance when compared to recalled predictions. There were no effects of the implicit theories of emotion manipulation nor differences between self and friend predictions. Overall, recalled predictions were tempered; participants had more conservative ratings for recalled prediction for themselves and their friends for both good and poor performance. These ratings were also not dependent on whether they actually performed well or poorly (receiving good or poor feedback). Thus participants' experiences did not distort participants' recall. In other words, recall was more conservative than original prediction (for both themselves and their friends) regardless of what participants actually experienced. This was verified by the correlational analysis findings.

It should be noted that the fact that recalled predicted affect was not directly influenced by experience contradicts Meyvis et al.'s (2010) findings that people anchor

their recalled predictions on their recently experienced affect. While there have not been many studies on this topic for comparison, there are a few reasons for divergent results. First, Meyvis et al. did find some variation in the extent to which experienced affect influenced recall. They qualified their interpretations by speculating that the strength of people's intuitive theories or beliefs may affect initial predictions and their recall. As such, they suspect that weaker beliefs should result in more influence from actual experience on recall. Perhaps the students in the present study possessed strong beliefs about the impact of a reasoning test on their emotions compared to the beliefs of the participants in Meyvis et al.'s studies. Second, the present study used a shorter delay between original prediction and recall than Meyvis and colleagues' work. This was not done intentionally but rather was a product of the study's design. It is possible that the present participants recalled their predictions more accurately for this reason, and that they were therefore less susceptible to distortion as a function of experienced affect. The study reported in the next chapter explores whether time matters for the recall of former predictions.

### *Conclusion*

To my knowledge, the present study is the first in the affective-forecasting literature to assess the effects of implicit theories of emotion on the accuracy of affect prediction and recall of affect prediction. Implicit theories of emotion did not influence forecasting accuracy as expected. Additionally, the study demonstrated that the recall of predictions was not associated with, or influenced by, recent experiences. These results

help to clarify what factors influence affective-forecasting abilities by considering the idea that forecasting proficiencies or difficulties are moderated by beliefs about emotions. The results on recalling predictions question whether forecasting accuracy does stem from a failure to recall past predictions. Experienced affect did not appear to distort recall for predictions which makes it unlikely that experience-distorted memory for predictions prevents people from learning to correct their predictions over time.

## Chapter 3

### **Study 2: Effects of Event Timing on Impact Bias and Prediction Recall**

#### **3.0 Abstract**

The study presented in this chapter examined the role of a delay between prediction and experience in interpersonal affective forecasting in a study design similar to Study 1. Participants were asked to make predictions about their affective reactions to receiving positive and negative feedback on a test of reasoning skills for themselves and for a close friend (study partner) either a week prior to a subsequent lab session (distant condition) or at the start of the lab session itself (recent condition). Participants then completed a reasoning skills test during the lab session and rated their experienced affective reactions to negative test performance. The results showed no differences between individual and interpersonal impact biases across conditions, but the classic impact bias was supported. Less positive affect was predicted (positive and calm feelings) than experienced for both self and friend in response to negative events. Further, participants' original and recalled predictions of positive feelings differed significantly in the distant condition (with greater time between predictions and recalled predictions) for the friend with greater entity theories of emotion. Recalled predictions of calm feelings differed from original predictions only for self-predictions. Both positive and calm feelings were rated higher for recalled predictions. Recalled predictions were (mostly) not influenced by experienced affect.

### **3.1 Introduction**

The aim of the present study was to investigate the role of temporal distance in affective prediction accuracy and recall for affective predictions. As in Study 1 (see Chapter 2, above), the present study assessed pairs of friends' affective predictions for themselves and for one another for upcoming good and poor performance on a reasoning skills test. Unlike Study 1, this study did not manipulate implicit theories of emotion and it limited the feedback participants received to negative feedback. This introduction discusses the research questions addressed by the study and presents the hypotheses that were tested.

There has been a great variety of manipulations used in the affective forecasting literature. However, researchers have not yet systematically compared predictions that are closer or further in time from the emotional event. In a related study, Finkenauer, Gallucci, van Dijk, and Pollmann (2007) assessed how both time course and temporal distance influenced forecasting accuracy. They found that people seem to know that time will alter their reactions, but underestimated the speed at which their affective reactions would decrease. Participants' prediction accuracy was greater for more temporally distant positive events, but lower for more temporally distant negative events. Participants' accuracy for negative events was greater the more temporally close the event was situated to predictions. Other studies have also demonstrated effects on predictions due to temporal factors. Research has found that people "discount" the effect of the future, expecting their affective reactions to be less intense in the future compared to the present

(Kassam, Gilbert, Boston, & Wilson, 2008). This affective forecasting error is referred to as “future anhedonia.” In multiple studies, Kassam and colleagues found that participants estimated greater happiness in the present compared to the future. Buehler and McFarland (2001, Studies 3-5) also found evidence for stronger feelings when focusing exclusively on the upcoming event instead of relevant past experiences with participants generating more unrealistic forecasts. They also found that the future may be likewise mispredicted when compared to the past, with stronger feelings predicted when focusing on future scenarios compared to focusing on past experiences. Both these lines of research suggest that timing of the focal events plays a role in affective forecasting.

The present study sought to confirm and extend the findings of Study 1 reported in this thesis. Predicting affect, reporting affect, and recalling predicted affect in a single session is expected to lead to weaker effects than those obtained with a longer intervening time interval between prediction and experience. The study manipulated the timing of participants’ affect predictions by comparing participants who made predictions a week before coming in for the study with those who made predictions during the study session. Because the prediction of negative affect is most susceptible to bias, I limited participants’ experience to negative feedback by only administering the difficult version of the reasoning test used in Study 1.

As previously described in Chapter 2, Meyvis and his colleagues have found that people tend to remember their past predictions as more similar to their relevant recent affective experiences than to their original predictions (Meyvis et al., 2010). Study 1’s

results diverged from these results: partial correlations between experienced affect and recalled prediction were non-significant when controlling for original predictions. This implies that participants did not solely base their recalled predictions on recent affect, but additionally on their correct memory of original predictions. Even so, predicted affect and recalled predicted affect did differ; participants had more conservative ratings for recalled prediction than original predictions for both good and poor performance (regardless of whether the event was actually experienced and whether predictions were for self or friend). The present study sought to verify these results and to assess whether errors in prediction recall are magnified with an extension of time between past predictions and experiences and recalled predictions. Based on Study 1, differences between original affect predictions and recalled affect predictions were expected. In terms of the effect of the time manipulation in this study, a greater gap between prediction and experience should affect both forecasting accuracy and recalled prediction accuracy. A time delay should lead to less accurate predictions (demonstrating differences between predicted affect and actual reported affect) and to less accurate recalled prediction accuracy (differences between predicted affect and recalled predicted affect). A longer time delay implies a weaker memory trace that is more susceptible to distortion, for instance due to conservative biases or to experience of affect (similar to the prediction recall hypothesis). A longer gap should also affect forecasting accuracy because it is harder to estimate the effects of co-occurring events and future mood states at a more distant point in time.

#### *Hypotheses summary*

Differences between predictions and experiences were expected in line with the classic affect impact bias. The delayed condition was expected to be less accurate in both forecasting accuracy (differences between predicted affect and actual reported affect) and recalled prediction accuracy (differences between predicted affect and recalled predicted affect). As the previous study reported in this thesis did not find differences in self and friend predictions, differences between friend predictions and individual predictions were not expected. Recalled predictions were hypothesised to be more discrepant from original predictions in the delayed condition than in the immediate condition. As there were no differences between recalled predictions for self and for friend in Study 1, I did not expect differences in this present study. Likewise, there were no expected effects of within-dyad differences in implicit theories of emotion as in Study 1.

## **3.2 Method**

### **3.2.1 Participants**

Forty participants (30 females, 10 males) completed the study in 20 same-gender friend dyads (Mean age = 20.90 years,  $SD = 2.61$ ). Participants were recruited through flyers and student email lists asking for pairs of same-gender friends.<sup>4</sup> Study partners' mean duration of friendship was 22.25 months ( $SD = 13.35$ ). After the study, participants were debriefed and paid up to £8 or received course credit.

### **3.2.2 Design**

---

<sup>4</sup> There were no overlaps in the participant samples of the six studies reported in this thesis.

The study used a 3 x 2 x 2 mixed design ANOVA with Prediction/Experience (friend's prediction vs. self-prediction vs. self experience) and Person (lower vs. higher entity ITE) as repeated measures (or within-dyad factors) and Temporal Condition (recent vs. distant) as the between-dyad factor. Similar to the previous study reported in this thesis, a dyadic design was used in order to take into account the non-independence of data arising from the fact that the reported experiences of each person were compared to the predictions made by each person in the dyad.

### 3.2.3 Measures<sup>5</sup>

Participants were asked to complete a number of measures both before and after the reasoning test administered during the study session. Those in the distant condition made affective predictions in an online questionnaire at home a week before the session, and those in the recent condition made predictions during the session. In order to balance the number of questions the participants were given, those in the recent condition completed the Implicit Theories of Emotion Scale (ITES; Tamir et al., 2007) in the online questionnaire, while those in the distant condition completed it at the end of the study session.

*Baseline affect.* Before the test (either online or at the beginning of the session) participants were asked for current (baseline) mood ratings, “*How positive or negative (calm or anxious) are you feeling at this moment?*” on a 7-point scale ranging from 1

---

<sup>5</sup> The measures described in this section are those most relevant to the study. Other measures were included for exploratory purposes but are not reported here. Appendix D includes the measures described in in the study.

(*Extremely negative (anxious)*) to 7 (*Extremely positive (calm)*).

*Predicted affect.* Predicted affect was measured by asking for ratings of predicted emotions, “*How positive or negative (calm or anxious) do YOU expect (YOUR FRIEND) to feel following good (bad) performance on a test of your (their) reasoning abilities?*” on a 7-point scale anchored at the endpoints *Extremely negative (anxious)* and *Extremely positive (calm)*. Reporting order (self, friend) and feedback valence predictions (good, bad) were counterbalanced across pairs of participants (but kept consistent within pairs).

*Experienced affect.* Reported experience was measured directly following the test by asking, “*How positive or negative (calm or anxious) are you feeling at this moment?*” on a 7-point scale ranging from 1 (*Extremely negative (anxious)*) to 7 (*Extremely positive (calm)*).

*Recalled affect.* Recalled affect was measured next by asking, *What did you rate previously for: How positive or negative (calm or anxious) do YOU expect (YOUR FRIEND) to feel following good (bad) performance on a test of your (their) reasoning abilities?* on a 7- point scale anchored from 1 (*Extremely negative (anxious)*) to 7 (*Extremely positive (calm)*).

*Implicit Theories of Emotion.* Participants completed the Implicit Theories of Emotion Scale (ITES; Tamir et al., 2007) which measures implicit beliefs about emotions. Please see Chapter 2 for a detailed description of this scale. Cronbach’s  $\alpha$  was .81 for the current sample.

### **3.2.4 Procedure and Materials**

All participants were asked to complete an at-home online questionnaire the week before the study session using Qualtrics (<http://www.qualtrics.com/>). Participants were told that the questionnaire concerned perceptions about emotions. They were then asked to book a study session in which they would be asked to complete a brief test of reasoning skills and answer questions about their own and their friend's emotions and temperament.

Participants were randomly assigned to either a distant condition or a recent condition in order to vary the time of their affective predictions. Those in the distant condition made predictions in the online questionnaire a week before the session while those in the recent condition made predictions at the beginning of the session. All participants were asked to predict how positive, negative, calm, and anxious they and their friend would feel following positive and negative feedback on a reasoning skills test. During the study session, participants completed the Remote Associates Test (RAT; McFarlin & Blascovich, 1984), which they were informed was a "brief test of reasoning skills" (see Appendix C for the RAT). All participants were given the difficult RAT version resulting in negative feedback. Specifically, they were told that they had performed below average on this test compared to the other participants. Afterwards, participants recorded their current mood (experienced affect) and were asked to recall and record their previous ratings of affective predictions for themselves and their friend (prediction recall). The study concluded by debriefing the participants, which included informing them about the difference in delay conditions and that the RAT feedback they

received had been experimentally manipulated.

### **3.3 Results**

#### **3.3.1 Measures**

As the previous study reported in this thesis combined positivity and negativity ratings and calm and anxious ratings to form composites, the present study made use of bi-polar rating scales (as opposed to separate unipolar scales) with higher scores also indicating more positive and calmer feelings to facilitate comparability.

#### **3.3.2 Manipulation Check**

To assess whether participants' ratings of positive and calm feelings changed over time due to test performance feedback, a 2 x 2 x 2 mixed design ANOVA was conducted with Person (lower vs. higher entity ITE) and Time of Measurement (pre-study vs. post-study) as repeated measures (or within-dyad) factors and Temporal Condition (recent vs. distant) as the between-subjects (between-pairs) factor. Time 1 (T1) took place before taking the RAT test and Time 2 (T2) occurred after receiving test feedback.

For positive feelings, there was a main effect of Time of Measurement,  $F(1, 18) = 43.97, p < .001, \eta^2 = .71$ , which demonstrated that ratings were more positive at T1 ( $M = 4.90, SD = 0.91$ ) than at T2 ( $M = 3.48, SD = 0.68$ ). There were no further significant results and there were no significant results for calm feelings. Thus, the feedback manipulation succeeded in altering positive feelings, but did not affect calm feelings replicating the manipulation check findings in Study 1.

### **3.3.3 Forecast Bias**

#### **3.3.3.1 Predictions and Experiences**

To assess whether the temporal manipulation of predictions influenced accuracy of predictions and experiences, ratings of positive and calm feelings were subjected to a 3 x 2 x 2 mixed design ANOVA with Prediction/Experience (friend's prediction vs. self-prediction vs. self experience) and Person (lower vs. higher entity ITE) as within-dyad factors and Temporal Condition (recent vs. distant) as the between-dyad factor. Analyses of variance conducted for positive feelings yielded a main effect of Prediction/Experience,  $F(1, 36) = 22.73, p < .001, \eta^2 = .56$ . Comparisons demonstrated that friend's predictions of positive feelings ( $M = 2.63, SD = 0.53$ ) and participants' self-predictions ( $M = 2.53, SD = 0.57$ ) were each significantly lower than reported experience ( $M = 3.48, SD = 0.68$ ), but not significantly different from each other.

Likewise, calm feelings demonstrated a main effect of Prediction/Experience,  $F(1, 36) = 8.00, p = .001, \eta^2 = .31$ . Comparisons similarly demonstrated that friend's predictions of calm feelings ( $M = 3.50, SD = 0.81$ ) and participants' self-predictions ( $M = 3.25, SD = 0.90$ ) were each significantly lower than reported experience ( $M = 4.20, SD = 1.01$ ), but not significantly different from each other. No other significant effects were found.

### **3.3.4 Prediction Recall**

#### **3.3.4.1 Predictions and Recalled Predictions**

Predictions of positive and calm feelings were each subjected to a 2 x 2 x 2 x 2 mixed design ANOVA with Person (lower vs. higher entity ITE), Target (self vs. friend), and Prediction/Recall (original vs. recall) as within-dyad factors and Temporal Condition (recent vs. distant) as the between-dyad factor.

For predictions of positive feelings, the analysis yielded a main effect of Prediction/Recall,  $F(1, 18) = 12.64, p = .002, \eta^2 = .41$ , showing that original predictions of positive feelings ( $M = 2.58, SD = 0.49$ ) were lower than recalled predictions ( $M = 2.89, SD = 0.59$ ). This main effect was qualified by an interaction between Prediction/Recall and Temporal Condition,  $F(1, 18) = 4.55, p = .047, \eta^2 = .20$ . Comparisons demonstrated that original and recalled predictions differed significantly from one another only in the distant condition,  $F(1, 18) = 16.18, p = .001, \eta^2 = .47$ , with original predictions ( $M = 2.50, SD = 0.58$ ) rated lower than recalled predictions ( $M = 3.00, SD = 0.65$ ) (see Figure 3.1).

This two-way interaction was further qualified by a significant three-way interaction of Person, Prediction/Recall, and Temporal Condition,  $F(1, 18) = 6.52, p = .020, \eta^2 = .27$ . The two-way interaction was significant for the person with higher entity ITES but not for the person with lower entity ITES. Comparisons demonstrated that the person with higher entity ITE's predictions differed significantly in the distant condition,  $F(1, 18) = 15.23, p = .001, \eta^2 = .46$  with original predictions rated lower in positive feelings than recalled predictions (see Figure 3.2a). The person with lower entity ITE's

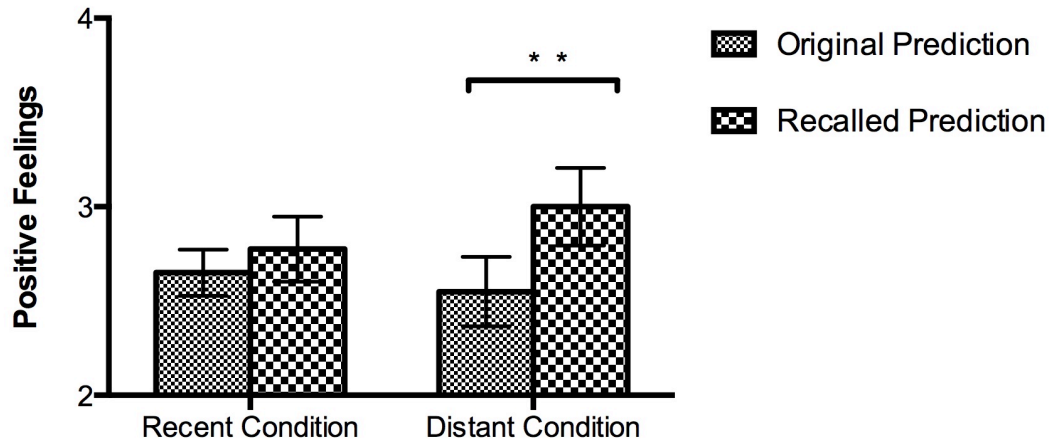


Figure 3.1. Interactive effect of temporal condition and prediction/recall on ratings of positive feelings. Higher ratings indicate more positive feelings, lower ratings indicate more negative feelings. Error bars indicate SEM. \* $p < 0.05$ . \*\* $p < 0.01$ .

predictions differences in the recent condition nearly reached levels of significance,  $F(1, 18) = 4.41, p = .050, \eta^2 = .20$  with original predictions rated lower than recalled predictions (see Figure 3.2b). An additional ANOVA conducted separately for each person confirmed that the two-way interaction was significant for the participant with higher entity ITE,  $F(1, 18) = 10.96, p = .004, \eta^2 = .38$ , but not for the person with lower entity ITE,  $F(1, 18) = .31, p = .584, \eta^2 = .02$

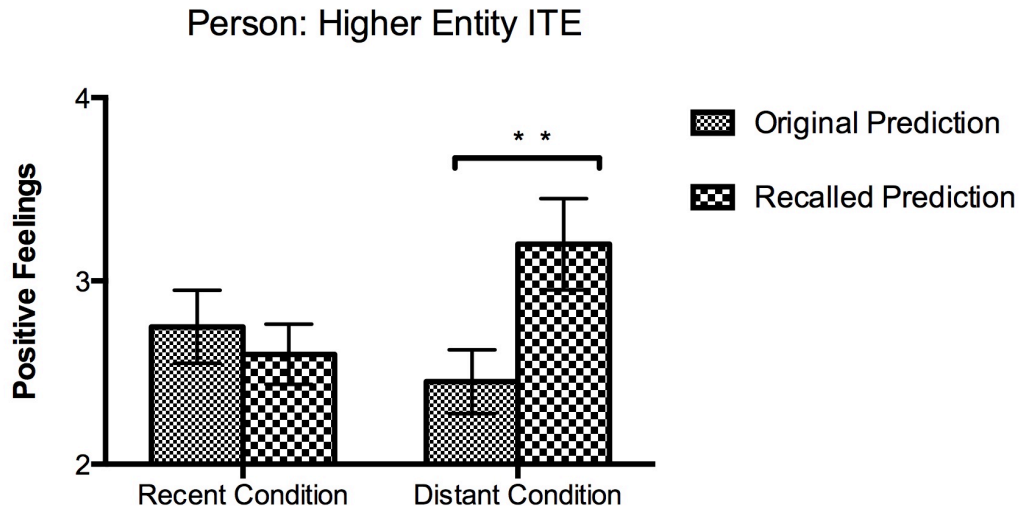


Figure 3.2a. Interactive effect of temporal condition, prediction/recall, and person on ratings of positive feelings. Higher ratings indicate more positive feelings, lower ratings indicate more negative feelings. Error bars indicate SEM.  $*p < 0.05$ .  $**p < 0.01$ .

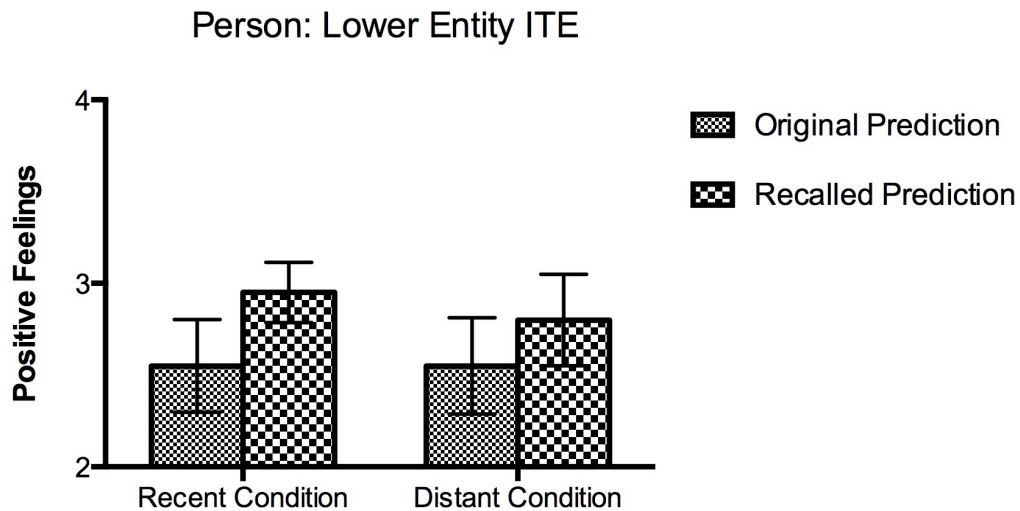


Figure 3.2b. Interactive effect of temporal condition, prediction/recall, and person on ratings of positive feelings. Higher ratings indicate more positive feelings, lower ratings indicate more negative feelings. Error bars indicate SEM.  $*p < 0.05$ .  $**p < 0.01$ .

With respect to calm feelings, the analysis yielded a similar main effect of Predictions,  $F(1, 18) = 7.05, p = .016, \eta^2 = .28$ , with original predictions of calm feelings ( $M = 3.38, SD = 0.68$ ) rated lower compared to recalled predictions ( $M = 3.65, SD = 0.85$ ). This main effect was qualified by an interaction of Prediction/Recall and Target,  $F(1, 18) = 8.89, p = .008, \eta^2 = .33$ . Comparisons demonstrated that original and recalled predictions differed significantly from one another only for self-predictions,  $F(1, 18) = 11.59, p = .003, \eta^2 = .39$ , with original predictions ( $M = 3.25, SD = 0.90$ ) rated lower than recalled predictions ( $M = 3.80, SD = 1.16$ ).

### **3.3.4.2 Correlation analysis**

A further analysis conducted separately for each person of the dyad demonstrated that recalled predictions of positive feelings for self and for friend were positively correlated with original predictions,  $r(18) = .29$  to  $r(18) = .87$ , four out of eight significant,  $ps < .05$ . Similarly, recalled predictions of calm feelings for self and for friend were positively correlated with original predictions,  $r(18) = .20$  to  $r(18) = .85$ , three out of eight significant,  $ps < .05$ .

In order to test whether experienced affect influenced participants' memory for predictions, partial correlations between experienced affect and recalled prediction were calculated controlling for original predictions for all conditions for both self and friend. Only two out of eight of these partial correlations were significant; in the distant condition, the person with higher entity ITE's experienced calm feelings were positively

correlated with the recall of their own prediction after controlling for their original prediction,  $r(18) = .84, p = .005$ , and the person with lower entity ITE's experienced positive feelings were positively correlated with the recall of their prediction for their friend after controlling for their original prediction,  $r(18) = .79, p = .012$ .

### **3.4 Discussion**

The present study investigated the effect of temporal distance on recall accuracy for individual and interpersonal affective predictions. The results demonstrated that the recall of affective predictions was in fact affected by the time of prediction manipulation. Those who were in the distant condition had poorer recall. The results also demonstrated the classic impact bias as participants predicted more unpleasant feelings for both themselves and their friend than they in fact experienced. This bias was not more pronounced in the condition that extended the duration between predictions and reported experiences. Thus, the time at which participants made affective predictions did not influence prediction accuracy. There was also a lack of differences between self and friend-predictions of future affect.

#### *Forecasting bias and time*

The results of the present study confirmed the operation of the well-established impact bias. Following negative performance feedback, participants reported feeling more positive and calm than they had anticipated feeling. This did not differ depending

on whether the feelings were anticipated for themselves or for their friend. Interestingly, the difference in time interval between affective predictions and reported experiences did not affect prediction accuracy.

There are a few possible reasons why prediction accuracy was not altered by a time interval difference between affective predictions and reported experiences. It may be that the time interval alone was insufficient to alter accuracy. While Finkenauer et al. (2007) found that participants' accuracy for negative events was greater the more temporally close the event was situated to predictions, it should be noted that the researchers measured multiple instances of predictions (participants made repeated predictions, one each day for five consecutive days prior to the emotional event) and concluded that the days closest to the event yielded more accurate predictions. In the present study, participants each made a single prediction at one of two time intervals prior to the emotional event. Thus, it may take repeated predictions and dissipation of predicted affect to achieve increased accuracy due to temporal proximity to the event. Repeated predictions may attenuate exaggerated negative predictions. However, despite this difference in design, the idea that for negative events, accuracy increases the closer in time predictions are to the target event is similar in both studies. Additionally, the present between-subjects design does not confound time of prediction with the experience of making predictions for the same event. This difference permitted the assessment of any moderation of accuracy due to the temporal distance to the event without effects due to multiple predictions in within-subject designs.

Another plausible explanation for the lack of an effect due to temporal condition is that participants may have used intuitive theories to make predictions which did not take time into account. Participants may have made the same predictions for an event that was to occur that day or one that would occur a week later if they had based their predictions on basic intuitive theories about how they or an average person reacts to negative events without factoring in changes in affect due to the passing of time. This explanation corroborates the notion that impact bias is in part due to being overly focused. Wilson et al. (2000) demonstrated that focalism can account for impact bias as in their studies participants did not take into account the consequences of other co-occurring future events when making predictions of future affect. Specifically, participants made less extreme affective predictions when they were asked how much time they would spend on everyday activities on a particular day (a few days after the event). While there was a manipulation of time in the present study, participants were not explicitly told to consider or not consider time, and as such, it may be this aspect that partially accounts for the lack of accuracy differences between conditions. In the present study the time interval difference was not large and no focus was explicitly made about when the event would occur. As previously mentioned, other studies (e.g., Buehler and McFarland, 2001, Studies 3-5; Kassam et al., 2008) have demonstrated effects on predictions due to temporal construals, but they used different methods. Finally, the possibility that participants in the short-delay condition of the present study were aware that predictions would have to be tested during the same session (as no follow-up session

was scheduled) may have curbed impact bias. However, previous research has still found evidence for impact bias in one-session bi-phasic designs (e.g., Pollmann & Finkenauer, 2009).

### *Recalled affective predictions*

The results demonstrated that original and recalled predictions of positive feelings differed significantly from one another in the distant condition with original predictions rated lower than recalled predictions. However, this was qualified by a three-way Person, Prediction/Recall, and Temporal Condition interaction demonstrating that only the person with high entity ITE's predictions differed significantly in the distant condition. The delay had less of an effect on the lower entity ITES person. While it was expected that recalled predictions and original predictions would differ in the distant condition, the difference between the pairs of participants was unexpected. It may be that those espousing greater entity implicit theories of emotion forget their initial predictions of future affect when there is a greater time interval between making predictions and recalling them due to differences in memory compared to those with lower entity ITES views. However, a similar effect was not found in Study 1 which casts some doubt regarding its reliability.

Interestingly, original and recalled predictions of calm feelings differed significantly from one another for self-predictions (with original predictions rated lower than recalled predictions). Self-predictions of calm feelings may be more susceptible to

misremembering. These predictions for oneself might be inherently more difficult to remember, regardless of any time interval between predictions and subsequent experiences and recalling predictions. Findings for friend predictions showed a similar pattern to those for self-predictions but here the differences from original predictions were not significant. Again, I found no clear evidence for a significant difference between self- and friend-predictions of future affect similar to Study 1.

While the results showed differences between recalled predictions and original predictions, recalled predictions of positive and calm feelings for self and for friend were positively correlated with their corresponding original predictions. This result replicates the findings of Study 1. Further corroborating Study 1, partial correlations between experienced affect and recalled predictions controlling for original predictions were mostly non-significant. This supports the finding that experience distorting affect that prevents learning from incorrect predictions may not be the case. The fact that some correlations were significant may mean that experienced affect could alter the recall of previous predictions as proposed by Meyvis et al.'s (2010) theory, though one of the two significant partial correlations was for friend-predictions for which experienced affect should not have distorted recall. In any case, both significant partial correlations were in the delay condition where memory might be more susceptible to distortion. As considered in Study 1's discussion, Meyvis and his colleagues' findings did have some variation in the extent to which experience influenced recall, particularly indicating that weaker beliefs are more influenced by experience. It is possible that participants in the

present studies had stronger beliefs about their own and their friends' performance expectations than those in Meyvis et al.'s (2010) studies.

### *Limitations*

The study did not establish whether the effects of a time delay depended on time or whether a difference in context (making predictions on-line at home versus in lab) could have accounted for the effect. Surprisingly, prediction context has not been reviewed in the affective forecasting literature and further research should help clarify its role.

### *Conclusion*

While the manipulation of delay did not affect prediction accuracy, it did have an effect on the recall of predictions. The three-way Person, Prediction/Recall, and Temporal Condition interaction demonstrated that the delay had more of an effect on the person with high entity ITE than the lower entity ITES person. Their recalled predictions differed significantly from their original predictions in the distant condition. As discussed above, the temporal manipulation in the present study may not have been sufficiently long to alter prediction accuracy; however, it was strong enough to highlight differences in the recall of previous predictions. The results of the present study generally support the prediction recall findings in Study 1. For both these studies, recall of predictions was mostly not influenced by recent experiences. And as previously discussed in Study 1, the

fact that experienced affect did not greatly impact the recall for predictions and the fact that prediction recall did not differ for friends and self casts some doubt on the theory that experience-distorted recalled predictions prevent people from improving affective forecasting.

## Chapter 4

### **Study 3: The Influence of Prior Knowledge about Impact Bias**

#### **4.0 Abstract**

The study presented in this chapter examined the role of knowledge about the impact bias on interpersonal affective forecasting. The study compared predictions of emotional responses to examination results made by students who were either informed about or unaware of the impact bias and its mechanisms. Results demonstrated no differences in predictions (for self or friend) resulting from knowledge about the impact bias. Regardless of condition, participants predicted significantly less unhappiness for friend than for self and predicted that the intensity of affective reactions to receiving exam results would decrease over time.

#### **4.1 Introduction**

The purpose of the present study was to investigate whether knowledge of the impact bias attenuates its operation. Strategies for reducing impact bias in affective forecasting have been previously investigated, but mainly involve manipulation of diaries (Wilson et al., 2000), event importance (Hoerger et al., 2010), and cognitive tasks (Sevdalis & Harvey, 2009). These accuracy manipulations could be seen as interference tasks, or tasks that distract participants. For instance, Wilson et al.'s de-biasing attempt through the use of diaries helped participants realise that other events would occur around

the time of the target event resulting in a defocalisation of the main event and thus reducing impact bias. Sevdalis and Harvey (2009) propose that interfering tasks can interfere with the processing required to judge affect thus degrading that processing, resulting in an output closer to the default ratings before processing. Until now, however, no study has directly investigated whether teaching people about the impact bias reduces its power. Informing people about the impact bias and the factors that cause it may change subsequent affect predictions for various reasons. First, people may try to make more accurate affect predictions to appear competent or to compensate for seemingly inherent affect forecasting shortcomings. Secondly, bias information is expected to change affect predictions as being aware of the psychological mechanisms behind the impact bias may help people think about their predictions in a more informed and sophisticated way. On the other hand, it is also conceivable that informing people about the bias and its mechanisms will not change their predictions. This might be due to the fact that the impact bias is fairly robust. As discussed in Chapter 1, debiasing attempts have proved somewhat unsuccessful for other biases in the psychological literature such as the hindsight bias (Fischhoff, 1977) and the economic sunk cost bias (Arkes & Blumer, 1985). In the Fishchoff study, those told about the hindsight bias and how to avoid it performed the same as those in the other groups. Arkes and Blumer (1985) found that psychology students who had taken economics courses and economics students did not fare better at escaping the classical economic sunk cost bias compared to psychology students with no background in economics.

Though debiasing effects seem mixed, because debiasing has not been directly investigated with respect to the impact bias, the present study assessed the effects of knowledge about the impact bias on individual and interpersonal affective predictions to receiving examination marks. Students in a psychology practical class and their friends predicted how they and their friends would feel after receiving genuine and consequential positive and negative examination results, with half knowledgeable about the impact bias. Subsequently, participants reported their emotional experience after receiving the examination results.

Maintaining this thesis's focus on assessing affective predictions to test results (as in Study 1 and 2), the present study assessed predictions of emotions for upcoming academic exam results. This study's paradigm is analogous to Buehler and McFarland's (2001, Study 1 and 2) research on affective predictions to actual academic results (in their case a final course grade and a midterm exam) which allowed for comparisons between affective predictions and experiences. At the time of the study all participants were soon due to receive their Part 1 examination results,<sup>6</sup> so this event was selected as one that would bring direct positive or negative consequences for all participants. This methodology permits assessment of affect forecasting in more realistic and emotionally

---

<sup>6</sup> Part 1 examination results are particularly important to Oxford Experimental Psychology undergraduate students as the results count towards their final degree marks.

involving circumstances, thus enhancing ecological validity (but potentially reducing experimental control, as will be discussed later in the thesis).

Rather than attempting to change theories about emotions (as in Study 1), the present study altered participants' factual knowledge about affect predictions. Previous research has found that teaching people about psychological concepts can impact students. Beaman et al. (1978) found that teaching students about the bystander effect (the social psychological finding that people help less in emergencies when bystanders are present) led to changes in their future helping behaviour. Similarly, it was expected that teaching people about the impact bias would lead to changes in the ratings of predicted affect, such that participants would make more conservative ratings to correct for anticipated overestimation.

The present study also considered the perception about the time course of affect predictions which allowed the assessment of perceived change in future emotional reactions. Research has shown that people mispredict the emotional time course of events (Gilbert et al., 1998; Wilson et al., 2000) often over-predicting the duration of affect. Past studies have asked participants to make repeated predictions and to report experienced affect several times (Finkenauer et al., 2007; Wilson et al., 2000). As mentioned in the previous chapter, Finkenauer et al. (2007) found that people seem to know that time will alter their reactions, but people underestimate the speed at which time alters their reactions. To assess changes due to possible learning, participants in the present study predicted affect multiple times. The study thus considered whether the participants would

moderate their judgements of predicted emotions with time from prediction. In terms of time points, Wilson et al. (2000, Study 1) asked participants to rate emotions for the day of the target event (a football game) and for seven days following the game. They found little difference between conditions after the fourth day following the game and thus only included data for the day of the game and three days following. Finkenauer et al. (2007) used more time points, asking participants to make predictions of future affect each day for five consecutive days prior to the target event (a driving exam). The participants predicted their affect for immediately after their driving exam and the subsequent 5 days (and reported experienced affect after the exam and the following 5 days). The present study opted to examine predictions and experienced affect at three time points, immediately after receiving exam results, one week later, and two weeks later. These time intervals were selected both for the sake of practicality and for comparability with other studies reported in this thesis (see below).

### *Hypotheses*

The group of participants that did not know about the impact bias was expected to demonstrate the typical impact bias. They were expected to make an overestimation of the emotional impact of the exam results. Both groups of participants were expected to display affect predictions that would attenuate with time; however, the definitive time point at which students believed the emotional impact would dissipate was unknown. Initially, the study was also intended to compare affect predictions to actual experienced affect; however, response rates for the follow-up questionnaires were lower than expected

and the sample was further reduced because the affective quality of the anticipated event was uncontrolled in advance. For these reasons, data concerning experienced affect in response to the event were not analysed, and affect predictions about reactions to both better than expected and worse than expected marks became the sole focus of the study.

In summary, it was expected that participants given information about the impact bias would make more conservative predictions than those not given information. Specifically, participants in the no knowledge condition were expected to predict greater happiness in response to positive results and greater unhappiness in response to negative results (for both individual and friend predictions) than those in the knowledge condition. Additionally, as those in the knowledge condition would know about interpersonal (or empathic) mispredictions and mechanisms responsible for the impact bias, they would be less likely to rate their friends differently from themselves. As such, it was expected that there would be little difference between individual and friend predictions for those in the knowledge condition, but differences between individual and friend predictions in the no knowledge condition. This was predicted even though the first two studies did not demonstrate self-friend prediction differences. These studies did not involve real-world, consequential feedback, unlike the present study. Thus, it was also expected that participants in the no knowledge condition would rate friend predictions as less negative compared to self-predictions due to the emotion intensity bias, self-other differences in perspective taking, and immune neglect (previously described in Study 1). It is therefore hypothesised that participants in the no knowledge condition would give less negative

friend predictions than self-predictions. Finally, as the predictions' intensities were expected to decrease with time, it was expected that participants in the no knowledge condition would demonstrate a more gradual decrease in prediction intensity than those in the knowledge condition, but would still have greater predictions of happiness and unhappiness at the various time-points compared to those in the knowledge condition.

## **4.2 Method**

### **4.2.1 Participants**

Forty participants (30 females, 10 males) completed the forecasting questionnaire in 20 same-gender friend dyads (Mean age = 20.08 years,  $SD = .53$ ). The mean duration of their friendships was 21.75 months ( $SD = 9.33$ ). Participants were students enrolled in a practical psychology course who each recruited a friend to voluntarily take part in the study. Follow-up questionnaires at T2, T3, and T4 were completed by 34 (85%), 32 (80%), and 32 (80%) of the participants respectively.

### **4.2.2 Design**

The study used a 2 x 2 mixed design ANOVA with Person (knowledge vs. no knowledge) and Prediction Target (self-prediction vs. friend prediction) as repeated measures (within-dyad) factors. Similar to the previous studies, a dyadic data design was used in order to take into account the fact that study partners made predictions for one another (undermining the independence of cases).

### 4.2.3 Procedure

Participants in the practical class were asked to recruit a close friend to take part in a study on predicting emotions. Prior to completing the questionnaires, the participants in the class were taught about the impact bias and its mechanisms and previous research on affective forecasting (see Appendix E for material covered). Those not in the class did not receive any factual information on the topic prior to completing the questionnaires. All participants were emailed instructions informing them about the study and the procedures involved. All study measures were administered online using Qualtrics (<http://www.qualtrics.com/>). At Time 1 (T1), participants were asked to rate their baseline mood and asked what they expected their Part 1 Exam mark to be. They were then asked to predict how happy and unhappy they (and their study partner) would feel at three time-points if they (and their study partner) received higher or lower marks than expected. The three time-points were: immediately after receiving exam results (T1), one week later (T2), and two weeks later (T3). All students provided predictions for receiving both high marks and low marks. The participants were debriefed after completing the study

### 4.2.4 Measures<sup>7</sup>

*Baseline affect.* Participants were asked for current (baseline) mood ratings, “How

---

<sup>7</sup> The measures described in this section are those most relevant to the study. Other measures were included for exploratory purposes but are not reported here. Appendix F includes the measures described in the study.

*happy (unhappy, calm, anxious) are you feeling at this moment?” on a 7-point scale ranging from 1 = Not at all happy (unhappy, calm, anxious) to 7 = Extremely happy (unhappy, calm, anxious).*

*Predicted affect.* Participants were then asked to predict their and their friend’s affect at three time points: after receiving results (T1), 1 week later (T2), and 2 weeks later (T3), “*If your (your friend’s) mark is as high or higher than the mark you (they) expected, how happy do YOU expect (YOUR FRIEND) to feel?* along 7-point scales (1 = Not at all happy, 7 = Extremely happy) and “*If your (your friend’s) mark is lower than the mark you (they) expected, how unhappy do YOU expect (YOUR FRIEND) to feel?* along similar 7-point scales. Reporting order (self, friend) and valence of the result marks (positive, negative) were counterbalanced across pairs of participants (same within pairs).

### **4.3 Results**

#### **4.3.1 Predictions**

As positive feelings predicted for self (friend) were not significantly correlated with negative feelings (unlike in previous studies reported in this thesis),  $r(38) = .16, p = .332$  ( $r(38) = .03, p = .873$ ) at T1, these items were analysed separately for the present study.

Predictions of happiness for receiving high marks and predictions of unhappiness for receiving low marks were each subjected to a 2 x 2 mixed design ANOVA with

Person (knowledge vs. no knowledge) and Prediction Target (self-prediction vs. friend prediction) as repeated measures factors (or within-dyad factors).

The analyses revealed a 2-way interaction between Person and Prediction Target for predictions of happiness following high marks,  $F(1, 19) = 5.98, p = .024, \eta^2 = .24$ . Subsequent comparisons yielded no significant differences between conditions. Those in the knowledge condition predicted higher ratings of happiness for friend predictions ( $M = 6.35, SD = 0.75$ ) compared to self-predictions ( $M = 5.95, SD = 0.83$ ) whereas those in the no knowledge condition predicted higher ratings of happiness for self-predictions ( $M = 6.30, SD = 0.92$ ) compared to friend predictions ( $M = 5.95, SD = 1.32$ ). Analyses of predictions of unhappiness did not demonstrate this significant interaction.

A main effect of Prediction Target was found for predictions of unhappiness following low marks,  $F(1, 19) = 8.78, p = .008, \eta^2 = .32$ . Pairwise comparisons revealed that significantly less unhappiness was predicted for friend ( $M = 5.38, SD = 1.05$ ) than for self ( $M = 6.18, SD = 0.73$ ). There were no further significant results.

#### **4.3.2 Effect of Time on Predictions**

To assess whether predictions for self and for friend changed depending on the time at which affect was predicted, a similar mixed ANOVA was conducted with the additional factor of Prediction Time (time 1, time 2, time 3) for predictions of happiness for receiving high marks and predictions of unhappiness for receiving low marks. The analyses revealed a main effect of Prediction Time for both predictions of happiness,  $F(2, 38) = 103.43, p < .001, \eta^2 = .85$ , and unhappiness,  $F(2, 38) = 38.10, p < .001, \eta^2 = .67$ . For

predictions of happiness for receiving high marks, pairwise comparisons revealed that ratings for each time were significantly different from each other, time 1 ( $M = 6.14$ ,  $SD = 0.49$ ), time 2 ( $M = 5.36$ ,  $SD = 0.44$ ), time 3 ( $M = 4.76$ ,  $SD = 0.56$ ). Pairwise comparisons for predictions of unhappiness for receiving low marks similarly revealed that ratings for each time were significantly different from each other, time 1 ( $M = 5.78$ ,  $SD = 0.67$ ), time 2 ( $M = 5.04$ ,  $SD = 0.65$ ), time 3 ( $M = 4.58$ ,  $SD = 0.62$ ). There were no other significant effects relating to time.

#### **4.4 Discussion**

The results demonstrated that knowledge of the impact bias and its mechanisms did not affect predictions of emotional reactions to receiving exam results for self or for friend as I had expected. However, there was a significant difference between individual and interpersonal predictions across the sample, with less unhappiness predicted for friend than for self. Regardless of condition and whether predictions applied to self or friend, participants expected their affect intensity to fade with time. These findings support the first hypothesis, friend predictions differed from individual predictions for negative results with less unhappiness predicted for friend than for self. The findings did not provide support for the second hypothesis, that knowledge of the impact bias and immune neglect and focalism would make a difference to affect predictions.

Unlike Pollmann and Finkenauer's (2009) studies and the first two studies presented in this thesis, the present study found differences between friend predictions and self-predictions. Specifically, participants predicted greater unhappiness for

themselves than for their friends if they were to receive low exam marks. This could be due to a combination of predicting greater negative affect due to impact bias and a salience in intensity for oneself relative to others due to the emotion intensity bias. Typically impact bias involves predictions of more intense emotions and has a tendency to be more pronounced for negative events. So, predictions of negative affect following exams would be expected. Further, the finding is compatible with the emotional intensity bias in which events are perceived to be more intense for oneself compared to others. Perhaps Pollmann and Finkenauer's test that participants predicted for which they described as, "an important test assessing their cognitive abilities," and the test which was used in the first two studies in this thesis under the guise of "a test of reasoning abilities" differs from an exam that has actual immediate consequences such as the one in this study. From the present results, participants appeared to be more concerned about their own marks and the consequences of poor results than they were concerned about their friends' results as demonstrated by predictions of greater future unhappiness for themselves compared to their friend. Pollmann and Finenauer's test which was used in the first two studies may not have brought about such a concern. While this self-friend difference was expected in the condition that did not know about the impact bias, this more general finding provides evidence for the emotion intensity bias hypothesis. The fact that this result differs from my previous two studies and Pollmann and Finkenauer's could provide evidence for the idea that context and situational differences affect predictions of future emotions.

It was expected the group that knew about the impact bias and its causes would adjust their predictions to correct for the bias. The obtained lack of difference between conditions could be due to different reasons. It may be that emotion ratings on a rating scale are difficult to correct, or, possibly, that participants did not believe that the findings about the impact bias would apply to them. Nisbett and Borgida (1975) have noted that, “It is a notorious fact that students quietly exempt themselves from the findings of social psychology experiments that they happen to find surprising or unpleasant” (p. 943). Whether participants attempted to correct their ratings (moderating typically inflated emotion intensity ratings) because of the impact bias findings to appear knowledgeable or due to expectancy effects (the lecturers would expect that students in the class would learn about the bias and thus be able to avoid it) is not discernible from this study. Another limitation not considered is whether those taught about the bias responded in a certain manner because they were psychology students.

The significant interaction between person and target which demonstrated a significant difference between the effects of person in the knowledge and no knowledge condition on self and friend predictions was unexpected. This finding is hard to interpret because the effect of knowledge seems to change the way in which friend and self predictions differ (and not in a direction consistent with correcting for bias in friend-predictions). It is unclear why it was found given that the manipulation was not intended to alter the predictions by target, and it was found only in predictions of happiness.

Finally, the hypothesis regarding differences in predicted affect by condition at the different time points was not confirmed. It was thought that participants in the no knowledge condition would demonstrate a gradual decrease in prediction intensity compared to those in the knowledge condition with greater prediction intensity at the various time-points. The participants demonstrated knowledge that emotion intensity would decrease by week. The condition they were in did not make a difference in this perception of affect attenuation. This finding fits in with the general notion about the influence of time on emotional events. People seem to know about emotional adaptation and that affect changes with time (Kahneman & Snell, 1990). Interestingly, these lay theories of affect progression can influence emotion forecasting (Igou, 2004); however, in the present study, the theory of affect progression appears to be similar in both groups.

The present study poses questions about why the information presented to the participants failed to simply debias them. A possible explanation could be the manner in which information was presented. For instance, participants may have discounted the information presented (Nisbett & Borgida, 1975). The following study attempted to address this possibility.

## Chapter 5

### **Study 4: The Influence of Specific and General Information about Impact Bias**

#### **5.0 Abstract**

The present study examined the effect that different types of de-biasing information have on individual and interpersonal affect predictions. Participants predicted their affective reactions and those of a close friend to future, self-identified negative events online after a debiasing manipulation. Participants were randomly allocated to a specific knowledge condition, a general knowledge condition, or a no knowledge condition thus manipulating the information given about impact bias (or bias in general). The results demonstrated no differences in affective predictions (for self or friend) by information condition. Additionally, participants' implicit theories of emotion were not associated to affect predictions.

#### **5.1 Introduction**

Study 3 found that those who knew about the impact bias were just as susceptible to its effects on affect predictions as those who did not know about the impact bias. The present study was designed to test whether the type of presented information about the impact bias mattered for subsequent affect predictions. It is plausible that because the information about the impact bias provided to the students in Study 3 was in a class setting and about a general, surprising psychological finding, the students may have

construed that the impact bias occurs in the general population, but that the finding was not applicable to them personally. Nisbett and Borgida (1975) have noted that social psychology students often exempt themselves from surprising or unpleasant findings of psychology studies. In fact, belief perseverance is very common in social psychology and its effects often only subside after substantial exposure to disconfirming evidence (Gardner & Dalsing, 1986). If students did not believe that they would be subject to the impact bias in Study 3, then this would explain the absence of an effect. Therefore, it is worthwhile to ascertain whether the manner in which information about the impact bias is presented affects participants' belief in its applicability to themselves.

More generally, previous research in social psychology has demonstrated that the way that information is presented can affect its acceptability. Individuals tend to favour target-case information (information about an individual) and ignore consensus information (information about the behaviour of people more generally, Nisbett & Borgida, 1975). The present study was designed to compare the effects of specific, target-case information with those of more general consensus information (similar to the type of information participants were given in Study 3). Prior to making affect predictions, information of either kind was provided to participants in the form of vignettes (see Appendix G for vignettes).

The vignettes used in the specific knowledge condition and general knowledge condition were designed to differ in terms of who they were about and the specificity of the examples and reasons behind the impact bias. The specific knowledge condition

vignette described a particular Oxford University student, providing concrete examples of the impact bias and its causes, but did not use psychological terminology. The general knowledge condition vignette discussed the impact bias and its causes in terms of the general population and used psychological terms. A control (no knowledge) condition was included to assess whether informing participants about the impact bias in either of the above ways resulted in different affect predictions compared to simply informing them about a general cognitive memory bias. If affect predictions in the control condition turned out to be similar to those made in other conditions, it could be argued that interventions designed to de-bias individuals with regards to the impact bias do not need to present information specifically about impact bias and affective forecasting. The no knowledge condition's vignette described a cognitive memory bias applying to people in general and used psychological terms (similar to the general knowledge condition's vignette).

The study differed from the previous ones reported in this thesis as the events were self-selected by participants rather than limited to examination results. Participant-identified events have been used successfully in past research to extend findings to a wider range of life events (Buehler & McFarland, 2001, Study 4 and 5). The events reported in the present study were still limited to negative events for practical purposes and because the impact bias is most prominent for negative events. As forecasting studies have previously considered predicted duration of emotions (in addition to emotion intensity) additional measures of anticipated duration of negative emotions were

included. The study was conducted as a single-phase online survey assessing affective predictions and did not include follow-up questionnaires for experienced affect ratings after target events occurred.

### *Hypotheses*

I hypothesised that participants in the specific knowledge condition would predict lower negative affect than participants in the general and no knowledge conditions. Participants' predictions in the control (no knowledge) condition were expected to be similar to those in the general knowledge condition, because Study 3 did not demonstrate differences in predictions between those that knew about the impact bias and those that did not. It was considered likely that the predictions for friends would correlate with the predictions for self but be more conservative in accordance with findings from Study 3 and in contrast to Studies 1 and 2. The real-world nature of self-selected events differ from predicting for a cognitive reasoning test in Studies 1 and 2.

## **5.2 Method**

### **5.2.1 Participants**

Ninety-one participants (69 females, 22 males) completed the study (Mean age = 20.85 years,  $SD = 2.94$ ). Their mean duration of friendship with their nominated friend was 76.83 months ( $SD = 65.47$ ). Participants were recruited through the psychology department's website and through department and student mailing lists. Data from an additional 12 participants were discarded because participants did not carefully read the

vignette or comply with study instructions, as determined by their answers to a post-study question on the vignette they had read. Upon completion of the questionnaire, participants were debriefed and entered into a raffle for £50.

### **5.2.2 Design**

The study used a 2 x 3 mixed design ANOVA with Prediction Target (self-prediction vs. friend prediction) as a within-subjects factor and Information Type (specific knowledge vs. general knowledge vs. no knowledge) as a between-subjects factor.

### **5.2.3 Procedure and Measures<sup>8</sup>**

Participants received information about the study and a link to the online questionnaire on Qualtrics (<http://www.qualtrics.com/>). Participants were randomly assigned to one of three conditions. In the specific knowledge condition, participants read a (supposedly factual) vignette about an Oxford University student who commits affect-forecasting errors due to being overly focused on the results and neglecting the fact that she would cope better than anticipated after receiving low exam marks. In the general knowledge condition, participants read about evidence suggesting that people commit forecasting errors due to the effects of focalism and immune neglect. In the no knowledge condition, participants read a text of similar length to the text used in the other conditions

---

<sup>8</sup> The measures described in this section are those most relevant to the study. Other measures were included for exploratory purposes but are not reported here. Appendix G includes the measures described in the study.

but it explained a general memory bias rather than discussing the affective forecasting bias (see Appendix H for vignettes).

After reading the vignette, participants were asked to report on an unpleasant event that they knew that they would experience in the next few weeks and an unpleasant event that they knew that one of their friends would experience, and rated the intensity and duration of their predicted emotional reactions to those events. In both cases, they were asked to state the date when the event would take place, say who would be present, and to describe the event. Specifically, participants were asked to forecast their and their friends' negative and anxious affective reactions to the event, "*How negative (anxious) do YOU expect (YOUR FRIEND) to feel during this NEGATIVE event?*" along 7-point scales (1 = *Not at all negative (anxious)*, 7 = *Extremely negative (anxious)*). Participants were then asked to predict the duration of their and their friends' anticipated emotional reactions, "*How long do you expect YOUR (YOUR FRIEND'S) negative feelings to last?*" (1 = *Not at all long*, 7 = *Extremely long*). Following these ratings, participants were asked for open-ended explanations for their predictions. Order of reporting predictions for self and for friend was counterbalanced across participants. Afterwards, participants completed the *Implicit Theories of Emotion Scale* (ITES; Tamir et al., 2007) for exploratory purposes and to maintain consistency with previous studies. Please refer to Chapter 2 for a detailed description of the scale. Cronbach's  $\alpha$  for the ITES was .81 for the current sample. The study concluded with a post-study question to ensure that

participants had in fact read and understood the vignette, and debriefed participants on the aims of the study.

### **5.3 Results**

Predictions of negative feelings, anxious feelings, and duration of negative feelings following negative events were each subjected to a 2 x 3 mixed design ANOVA with Prediction Target (self-prediction vs. friend prediction) as a within-subjects factor and Knowledge Source (specific knowledge vs. general knowledge vs. no knowledge) as a between-subjects factor. No significant main effects or interactions were found (see Appendix I for means and reporting of results).

The same ANOVA was conducted with the ITES as an additional continuous independent variable. Participants' implicit theories of emotion were not involved in any significant effects.

Negative feelings predicted for self were positively correlated with negative feelings predicted for friend,  $r(89) = .41, p < .001$ . Similarly, anxious feelings predicted for self and for friend were positively correlated,  $r(89) = .22, p = .040$ . The duration of negative feelings predicted for self and for friend were not significantly correlated.

Finally, open-ended explanations of predictions were checked for references to key terms relating to the text. The explanations contained no mention of the text presented at the beginning of the study nor any mention of the following terms from the text: "impact bias," "bias," "focalism," "immune neglect," "accurate," "accuracy," "inaccurate," "inaccuracy," "reconstruction," "memory," "misremembering," and/or

“misinformation.”

#### **5.4 Discussion**

The findings demonstrated that there were no differences in affective forecasting (for either self or friend) depending on prior cognitive de-biasing information. The results therefore did not support the central hypothesis that those in the specific knowledge condition would have differing predictions of intensity and duration compared to those in the general and the no knowledge conditions. As there were no differences between conditions, affective predictions (for self and for a close friend) remained fairly stable and were not easily influenced by the prior information presented.

Further, the open-ended explanation of participants' predictions revealed that the participants themselves made no reference to the text that was presented earlier in the study. This would suggest that participants' predictions were either not directly influenced by the text, the predictions were influenced by the text but the participants were not explicitly aware of its influence, or simply that the participants did not note the text's content as an explanation for their affective predictions.

These results have important implications in terms of attempting to reduce the impact bias in predictions of affect. Firstly, they support the findings in Study 3 which found that affective predictions did not differ between those that knew about the impact bias and those that did not. In a similar fashion, the present study demonstrated that those who knew about the impact bias (from a general or specific source) did not differ in affective predictions from those who did not know about the impact bias (the control or

no knowledge condition). In light of these findings, interventions designed to attenuate impact bias may not benefit from an information-providing approach, or possibly, the information would need to be provided in a different manner, for instance, one-to-one highlighting personal relevance or provided multiple times.

Previous studies make a strong case for reductions in impact bias due to diary keeping (Lam et al., 2005; Wilson et al., 2000), but recent research is beginning to question diary keeping's distinctiveness. Sevdalis and Harvey (2009) have found that diaries, solving anagrams, and mood-monitoring manipulations all similarly reduced bias in participants (attenuated affect reported). They argue for an interference and cognitive load effect of the manipulations. While the present study was not developed to test interference processing, the results add to the work on the theory of interference, particularly that emotion predictions were not differentially affected by the type of debiasing information provided (specific, general, none).

It may also be the case that predictions are inherently difficult to change or that participants rate future affective predictions using a general intensity heuristic for negative or positive affect. Levine, Lench, Kaplan, and Safer (2012) found that there were no differences when participants were asked about their affective predictions using general or specific questions. Participants similarly rated their affective predictions whether they were asked, "In general, how happy will you feel?" or "How happy will you feel about (specific event)?" This lends support to the idea that participants may be using an intuitive theory of emotions (e.g. folk theories) or a stable intensity heuristic when

providing affective predictions.

The results also demonstrated that self and friend affect predictions were correlated, however, predictions of duration of affect for self and for friend were not correlated. It is not apparent why self-predictions and friend-predictions of affect demonstrated an association, but predictions of affect duration did not. The lack of differences between self and friend-predictions replicates the findings from the first two studies and Pollmann and Finkenauer's (2009) findings. Self and friend-predictions seem to be similar even for self-selected events like those used in this study.

Finally, this study included the ITES as an exploratory measure. The results revealed that the participants' implicit theories of emotion were not associated with predictions. This finding adds to the evidence that ITES may not be a strong moderator in affective predictions.

### **Limitations**

The lack of a follow-up phase did not allow for direct verification of impact bias, but previous studies suggest the predictions would likely be biased. Additionally, another control condition, one in which no bias information was presented could help support the notion that providing any information at all does not alter bias, but this was not chosen in favour of maintaining a simple design.

## Chapter 6

### **Study 5: Between-subjects Self versus Friend Affective Predictions**

#### **6.0 Abstract**

The present study examined individual and interpersonal affect predictions using a between-subjects design in place of the within-subjects design used in Study 4 (and in previous studies reported in this thesis). Participants made online predictions of either their own affective reactions or those of a close friend to self-identified negative future events following similar procedures to Study 4. The results demonstrated no differences between affect predictions made for self and for close friends confirming the findings from previous studies reported in this thesis, and showing that these effects do not depend on this specific design feature.

#### **6.1 Introduction**

The present study was designed to verify if self-predictions and friend-predictions differed from one another if made independently of each other. Previous studies reported in this thesis (mostly) did not demonstrate differences in individual and interpersonal predictions of future affect (Studies 1, 2, 4). Study 3 found a difference assessing predictions for examination results. As previously discussed, the findings may have differed for that study as the examination results were directly-involving and had real world consequences for the participants. In either case, it seems possible that the previous studies could have been affected due to the nature of their within-subjects designs.

Specifically, making various predictions of affect accustomed participants to the rating scales and the experience of answering the first set of questions influenced responses to the later questions, making them more similar than they would otherwise have been. To verify that this was not the case, this study replaced the within-subject factor of self-other affect predictions with a corresponding between-subject factor, thus allowing comparisons of different groups' predictions. Unlike Studies 1-3, which asked for ratings of experienced affect directly after the occurrence of relevant events, the present study employed a single time-point assessment (like Study 4), and participants only made affective predictions either for themselves or for a close friend, not for both.

As previously discussed, various theories provide evidence for self-other effects in social psychology research and these were expected to extend to differences in individual and interpersonal affective predictions. Upon further investigation, it seems that studies demonstrating self-other differences in this area have often used between-rather than within-subjects designs (Chambers & Suls, 2007; Igou, 2008; Van Boven & Loewenstein, 2003). Pollmann and Finkenauer's (2009) study, which notably did not find self-other difference, used a within-subject design. These design choices may have been a factor in generating these effects. As such, using a between-subjects design is expected to produce different results to those previously reported in within-subjects studies.

As discussed in Chapters 1 and 2, the theories predicting self-other prediction differences mainly examine issues of access (Chambers & Suls, 2007) and projection (Igou, 2008; Van Boven & Loewenstein, 2003; 2005). The emotional intensity bias (i.e.,

the tendency to consider one's own affective experiences as more intense than others', Chambers & Suls, 2007; Miller & McFarland, 1987) leads to the prediction that personal and interpersonal affective forecasting should differ, and in particular, that affect predictions for others should be more attenuated than self-predictions.

It was expected that a between-subjects design would produce different results to the previously reported within-subjects studies. Specifically, participants in the self-reporting condition were expected to predict greater negative affect for themselves compared to those in the friend-reporting condition. Given that participants will not have access to the other condition's predictions, this comparison would support the previous studies conducted (Studies 1, 2, and 4) if no differences were found.

## **6.2 Method**

### **6.2.1 Participants**

Forty-one participants (31 females, 10 males) completed the study (Mean age = 18.61 years,  $SD = 0.70$ ). For those who made friend predictions, the mean duration of their friendship was 49.45 months ( $SD = 58.10$ ). Participants were recruited from Oxford's first-year psychology students' research participation scheme. Upon completion, participants were debriefed and received course credit for their participation.

### **6.2.2 Design**

The study used a between-subjects design with the single independent variable of Prediction Target (self-prediction vs. friend prediction). The main dependent variables were ratings of predicted negative feelings, predicted anxious feelings, and estimated durations of negative feelings. Additional dependent variables were event clarity, typical emotional reactions, emotional coping, focalism, and event familiarity.

### 6.2.3 Procedure and Measures<sup>9</sup>

Participants received information about the study and were asked to complete the questionnaire online using Qualtrics (<http://www.qualtrics.com/>). The students were randomly assigned to one of two conditions, a self-reporting condition or a friend-reporting condition. In the self-reporting condition participants were asked to make affective predictions for themselves. In the friend-reporting condition participants made affective predictions for a close friend. The forecasting instructions given to each group were the same.

*Forecasting questionnaire.* Participants were asked to think about an unpleasant event that they knew that they (or their friend) would experience in the next few weeks. They were asked to state the date it would take place, who would be present, and to describe the event. Participants were then asked to predict their (or their friend's) emotional reactions to the event, "*How negative (anxious) do you expect [your friend] to*

---

<sup>9</sup> The measures described in this section are those most relevant to the study. Other measures were included for exploratory purposes but are not reported here. Appendix J includes the measures described in the study.

*feel during this NEGATIVE event?” using a 7-point scale running from Not at all (1) to Extremely (7). Participants were then asked to predict the duration of their (or their friend’s) anticipated emotional reactions, How long do you expect your [your friend’s] negative feelings to last?” (1 = Not at all long, 7 = Extremely long). Following these ratings, participants were asked for open-ended explanations for their predictions. In order to investigate self-friend differences due to event clarity, typical emotional reactions, emotional coping, focalism, and event familiarity, participants were asked to rate the following questions on a 7-point scale running from Not at all (1) to Extremely (7), How clearly could you imagine this [your friend’s] negative event? How negatively do you [does your friend] usually react to negative events? How quickly do you [does your friend] usually recover from negative emotions? To what extent did your estimates of your [your friend’s] emotional reactions to this negative event take into account the other events you expected to be happening in your friend’s life at the time? How familiar are you with this [your friend’s] negative event?*

Participants then completed the *Implicit Theories of Emotion Scale* (ITES; Tamir et al., 2007) to explore possible effects of implicit theories of emotion. Chapter 2 describes this scale in detail. Cronbach’s  $\alpha$  was .79 for the current sample. The study concluded by debriefing participants.

## **6.3 Results**

### **6.3.1 Affect Predictions**

Independent samples t-tests were conducted comparing groups on predicted negative feelings, predicted anxious feelings, and estimated durations of negative feelings. There were no significant differences between groups. T-tests were also conducted for the items concerning event clarity, typical emotional reactions, emotional coping, focalism, and event familiarity finding no difference by condition (see Appendix K for means and reporting of results).

### **6.3.2 Correlation analysis**

A further analysis demonstrated that predicted negative feelings and predicted anxious feelings were correlated,  $r(39) = .47, p = .002$ . Predicted negative feelings were correlated with estimated durations of negative feelings,  $r(39) = .46, p = .003$ . Predicted anxious feelings were also positively (but non-significantly) correlated with estimated durations of negative feelings,  $r(39) = .11, p = .511$ . Participants' implicit theories of emotion were not significantly correlated with predicted negative feelings, predicted anxious feelings, or estimated durations of negative feelings for either self- or friend-predictions. From the additional event clarity, typical emotional reactions, emotional coping, focalism, and event familiarity items, only participants' typical emotional reactions ratings were significantly correlated with predicted negative feelings,  $r(39) = .50, p = .001$ , with predicted anxious feelings,  $r(39) = .42, p = .006$ , and with estimated durations of negative feelings,  $r(39) = .40, p = .010$ .

## **6.4 Discussion**

This study aimed to assess whether self-predictions and friend-predictions differed from one another when made independently. The results found no differences in predictions of affect based on the target of the prediction. This finding supports the previous findings reported in this thesis in which self- and friend-predictions were not found to differ. Thus, the present study suggests that the lack of difference between self- and other-predictions in previous studies does not seem to have been a consequence of using a within-subjects design.

The results also found that participants' implicit theories of emotion were not related to their predictions of negative emotions or their predictions of negative emotion duration. This supports the results from Study 4 in which implicit theories were not directly related to affect predictions.

Finally, the fact that the additional variables demonstrated no differences by condition is a surprising finding worth consideration. From these results, it could be inferred that participants rate scales for self and for friends in a similar manner when asked to select and rate emotional reactions for negative events. Further work would be needed to address this lack of differences. It could be that the average negative event elicits similar intensity and duration ratings compared to a specific target event. However, it could also be the case that the similarity between the additional measures points to a scale rating correspondence regardless of target.

## Chapter 7

### **Study 6: Focalism and Interpersonal Affective Forecasting**

#### **7.0 Abstract**

The study presented in this chapter examined the impact bias in interpersonal affective forecasting and the role of focalism. The study employed an online event-contingent recording method in which participants predicted their affective reactions and those of a close friend (study partner), and reported their experienced affective reactions to self-identified positive and negative events. Focalism was manipulated by having half the participants focus solely on the event while the other half were asked about the event in context. The results demonstrated distinctions between individual and interpersonal affecting forecasting biases depending on the emotion assessed. The study found individual impact bias for positive reactions for negative events regardless of condition, and reverse impact bias for calm reactions for positive events (at the individual and interpersonal level) for those who were asked to focus on the event compared to those who were asked about the event in context.

#### **7.1 Introduction**

The present study made use of a diary methodology where I assessed self-selected events using a biphasic design. This differs from previous studies which used standardised events (Studies 1-3) and provided accuracy measures for self-selected events that only looked at predictions (Studies 4 and 5). The study focuses more directly on two

of the main explanations for individual forecasting biases, focalism and, to a lesser extent, immune neglect. Its aim was to assess whether friend predictions are similarly susceptible to the effects of focalism as individual predictions.

As discussed in Chapter 1, people tend to overpredict their feelings in reaction to a future event (for a review, see Wilson & Gilbert, 2003) resulting in a discrepancy between what they believe they will feel and their subsequent affective experiences. Studies by a number of researchers have repeatedly shown this impact bias (misprediction of affect intensity and duration) for future affect (for a review, see Dunn & Laham, 2006) and researchers have proposed different reasons for its existence (Gilbert et al., 1998; Hoerger et al., 2010). The two most studied causes of the impact bias are focalism (the tendency to view events in isolation, overlooking the simultaneous impact of other events, Wilson et al., 2000) and immune neglect (the tendency to ignore coping mechanisms that often reduce the intensity of our emotions, Gilbert et al., 1998). Currently, no work on interpersonal affective forecasting has considered the role of either.

The present biphasic study adopted an event-contingent recording method (Wheeler & Reis, 1991) carried out through online questionnaires for self-selected everyday events. This method varied from the previous studies (Studies 1-3), but was somewhat similar to Studies 4 and 5 with the addition of a follow-up phase and the consideration of both positively and negatively valenced target events. Diaries and event-contingent recording methods have been shown to be an effective technique for studying

interpersonal emotion in everyday events (Simons & Parkinson, 2009). A two-week time frame was chosen as past research has used the same time frame; participants find it difficult to anticipate feelings over longer time periods (Gilbert et al., 1998, Study 3; Hoerger et al., 2010).

To examine the role of focalism, paired participants (friend dyads distinguished by lower vs. higher entity ITE) similar to previous dyad studies in this thesis were assigned to either a focal or nonfocal condition in which their requested descriptions of their future events (prior to forecasts) were either solely about the upcoming event or about the event in context of that day or week. This method was similar to the manipulation used by Wilson et al. (2000). It was expected that those in the focal condition would forecast more extreme affective reactions, but it was not evident if the manipulation would operate differently for individual forecasts and interpersonal forecasts.

While the previous studies mostly did not demonstrate self-other prediction differences, it was expected that friend forecasts would differ from individual forecasts as the target events in this study were real-world events with actual consequences that participants would be later experiencing. As such, the earlier discussed factors: the social comparison differences in the perception of emotional intensity, required additional perspective taking, and possible incorporation of the recognition of others' coping strategies were expected to lead to self-other differences.

As impact bias has been found to be more pronounced in negative events (Buehler & McFarland, 2001; Finkenauer et al., 2007; Gilbert et al., 1998), I specifically tested the following hypotheses: First, that friend predictions will differ from individual predictions for negative events with greater predictions of positive and calm feelings (less negative affect) predicted for friend than predicted for self; and second, that predictions (individual and from friend) will differ from reported experience for positive and negative events in the focal condition.

Lastly, ratings of immune neglect (recognition of recovery from negative emotions) were collected to explore moderations of affective forecasting bias. It was hypothesised that higher scorers on recognition of emotional recovery in self (friend) will have greater forecasting accuracy than lower scorers.

## **7.2 Method**

### **7.2.1 Participants<sup>10</sup>**

Forty-eight participants (24 females, 24 males) completed the study in 24 same-gender friend dyads (Mean age = 23.44 years, *SD* = 6.24). The same recruitment procedures and criteria were used as in Study 1. Study partners' mean duration of friendship was 50.56 months (*SD* = 47.68). Data from an additional 4 dyads were discarded because participants did not comply with study instructions and data from an

---

<sup>10</sup> Half of the sample (24 participants' data) was gathered as part of my MSc project. New data were collected as part of my doctoral research and the resulting combined dataset was completely reanalysed using different procedures for the purposes of the present thesis.

additional 2 dyads were randomly discarded to maintain a balanced design. After the study, participants were debriefed and either paid £10 for their time or given course credit.

### **7.2.2 Design**

The study used 3 x 2 x 2 x 2 mixed design ANOVA with Prediction/Experience (friend's prediction vs. self-prediction vs. self experience), Person (lower vs. higher entity ITE), and Event Valence (positive vs. negative) as repeated measures (or within-dyad factors), and Focality Condition (focal vs. nonfocal) as the between-dyads factor. A dyadic design was opted for to take into account the fact that the predictions made by one person were compared to their own reported experiences and the reported experiences of their friends' (whose own predictions were compared to their own reported experiences).

### **7.2.3 Procedure**

Participants received detailed instructions informing them about the study and the procedures involved. All study measures were administered online using Qualtrics (<http://www.qualtrics.com/>). Participants were asked to think of a pleasant and unpleasant event they expected to experience during the following two weeks. Examples of possible pleasant events (social events, going out, finishing an assignment) and unpleasant events (difficult work tasks and tight deadlines, unwanted obligations, having to deal with people they dislike) were provided to participants for guidance on their event selection. In advance of the study, they were further asked to make sure they knew details of their

study partner's event selections in order to contextualise the event. In the first online questionnaire, participants were asked to think about their and their friend's pleasant (unpleasant) event, state the date when it would take place and who would be present, and describe the event in either a focal or non-focal manner. Participants in the focal condition were asked to describe their and their friend's events and what would happen during these events, "*What do you expect will happen DURING the event?*" Participants in the non-focal condition were asked to describe the events in the context of that day or week, "*What do you expect will happen BEFORE or AFTER the event?*" Participants then predicted how they and their friend would feel during the selected events (predicted affect) and completed measures relating to individual differences and perceptions of emotions. Participants then recorded their emotions (experienced affect) in subsequent online questionnaires as soon as their pleasant and unpleasant events transpired. Following these experienced affect ratings, participants were debriefed.

#### **7.2.4 Measures<sup>11</sup>**

*Forecasting questionnaire.* Participants were asked for current (baseline) mood ratings, "*How positive (negative, calm, anxious) are you feeling at this moment?*" on a 1-7 scale with the following endpoints, 1 = *Not at all positive (negative, calm, anxious)*, 7 = *Extremely positive (negative, calm, anxious)*. This was followed by ratings of forecasted

---

<sup>11</sup> The number of questionnaires discussed is limited to those most relevant to the study. Other measures were included for exploratory purposes but are not reported here. Appendix L includes the measures described in the study.

emotions, “How positive (negative, calm, anxious) do YOU expect (your FRIEND) to feel during this POSITIVE (NEGATIVE) event?” 1 = Not at all positive (negative, calm, anxious), 7 = Extremely positive (negative, calm, anxious), and open-ended explanations for these predictions. Reporting order (self, friend) and valence (positive, negative) of the event were counterbalanced across pairs of participants (same within pairs).

*Implicit Theories of Emotion.* Participants completed the Implicit Theories of Emotion Scale (ITES; Tamir et al., 2007). For further description of this scale, please refer to Chapter 2. Cronbach’s  $\alpha$  was .85 for the current sample.

*Emotional recovery beliefs.* This item was included to assess immune neglect in self and friend. Participants were asked, “How quickly do you (does your friend) usually recover from negative emotions?” (1 = Not at all quickly, 7 = Extremely quickly).

*Awareness of mitigating events.* To check that the focalism manipulation worked, participants were asked, “To what extent did your estimates of the intensity and duration of your (friend’s) emotional reactions to this positive (negative) event take into account the other events and activities you expected to be happening (in your friend’s life) at the time?” (1=Not taken into account at all, 7= Taken into account a very great deal).

*Clarity of events.* To verify if differences found for self versus friend predictions were due to a difference in imagining events, participants were asked, “How clearly could you imagine this (your friend’s) positive (negative) event?” (1 = Not at all clearly, 7 = Extremely clearly).

*Reported experience questionnaire.* The reported experience questionnaires

(which participants completed after each of their target events occurred) asked participants for baseline mood ratings, descriptions of the events, and reported emotion experience ratings. Participants were first asked to think of the event that they experienced, state the date it occurred and who was present, and to describe the event, similar to the descriptions of the events in the forecasting questionnaire. Reported experience was measured by asking, “How positive (negative, calm, anxious) did YOU feel during this POSITIVE (NEGATIVE) event?” 1 = Not at all positive (negative, calm, anxious), 7 = Extremely positive (negative, calm, anxious). The questionnaire also included open-ended explanations for these reactions.

### **7.3 Results**

#### **7.3.1 Measure Composites**

Positive feelings predicted for self (friend) were inversely correlated with negative feelings predicted for self (friend) for positive and negative events, for baseline affect prior to predictions, for baseline affect prior to reported experience for positive and for negative events, and for reported experience for positive and for negative events,  $r(46) = -.46$  to  $r(46) = -.75$ , all  $ps < .01$ . Likewise, calm feelings were inversely correlated with anxious feelings for these measures,  $r(46) = -.42$  to  $r(46) = -.70$ , all  $ps < .01$ . Therefore, positivity and negativity ratings and calm and anxious ratings were combined as in previous studies reported in this thesis. Higher scores on these composite measures indicate more positive and calmer feelings respectively.

## 7.3.2 Manipulation Checks

### 7.3.2.1 Focalism

To check whether focalism differed in different conditions, a mixed design ANOVA was conducted on ratings of the awareness of mitigating events with Target (self vs. friend) and Event Valence (positive vs. negative) as within-subject factors and Focality Condition (focal vs. nonfocal) as the between-subject factor. The predicted main effect of focality was not significant. There was a significant interaction between Event Valence and Focality Condition,  $F(1, 46) = 6.35, p = .015, \eta^2 = .12$ . Simple main effects analysis demonstrated that for negative events, those in the nonfocal condition took mitigating events more into account ( $M = 4.73, SD = 1.13$ ) compared to those in the focal condition ( $M = 3.85, SD = 1.75$ ),  $F(1, 46) = 4.22, p = .046, \eta^2 = .08$ . Positive events did not demonstrate the same difference by condition. Thus, the focalism manipulation affected the consideration of context as intended for negative events, but not for positive events. Additionally, there was a significant main effect of Target,  $F(1, 46) = 4.50, p = .039, \eta^2 = .09$ , demonstrating that participants took mitigating events more into account for themselves ( $M = 4.59, SD = 1.43$ ) than for their friends ( $M = 4.17, SD = 1.63$ ),  $F(1, 46) = 4.50, p = .039, \eta^2 = .09$ .<sup>12</sup>

### 7.3.2.2 Clarity of Event

---

<sup>12</sup> Distinguishing by persons within pairs at this stage was unnecessary as dependent variables did not overlap. However, similar results were found for paired data with the additional within-subject factor of Person (lower vs. higher entity ITE).

To assess whether the perception of events differed by condition, a similar ANOVA was conducted on ratings of events' clarity. While there were no differences relating to focality or event valence, there was a significant main effect of Target,  $F(1, 46) = 4.93, p = .031, \eta^2 = .10$ . Participants rated their own events as more clearly imagined ( $M = 5.19, SD = 1.07$ ) than their friend's events ( $M = 4.83, SD = 1.16$ ),  $F(1, 46) = 4.93, p = .031, \eta^2 = .10$ .

### **7.3.2.3 Effect of Baseline**

Analyses of variance conducted for effects of baseline measures (positive and calm feelings at different assessment points: affect prior to predictions, affect prior to reported experience for positive events, and affect prior to reported experience negative events) yielded no significant differences by condition.

### **7.3.3 Forecast Bias**

Analyses of variance conducted on positive feelings ratings yielded a significant main effect of Event Valence, with higher ratings of positive feelings for positive events ( $M = 5.94, SD = 1.12$ ) than for negative events ( $M = 3.00, SD = 1.39$ ),  $F(1, 23) = 588.76, p < .001, \eta^2 = .96$ . Likewise, ratings of calm feelings demonstrated a significant main effect of Event Valence, with calm feelings rated higher for positive events ( $M = 4.73, SD = 2.36$ ) than for negative events ( $M = 2.90, SD = 2.17$ ),  $F(1, 23) = 40.08, p < .001, \eta^2 = .65$ . No other significant main effects were found.

A significant Person x Focality Condition interaction effect on ratings of positive feelings was found,  $F(1, 23) = 4.99, p = .036, \eta^2 = .19$ . Comparisons demonstrated that in the nonfocal condition, the person with higher entity ITE's overall positive feelings score (combining predictions and experiences across positive and negative events) was significantly lower ( $M = 4.24, SD = 1.22$ ) than the corresponding score of the person with lower entity ITE's ( $M = 4.58, SD = 1.19$ ),  $F(1, 22) = 5.34, p = .031, \eta^2 = .20$ , but no such difference was found in the focal condition (see Figure 7.1). No corresponding significant interaction was found for ratings of calm feelings.

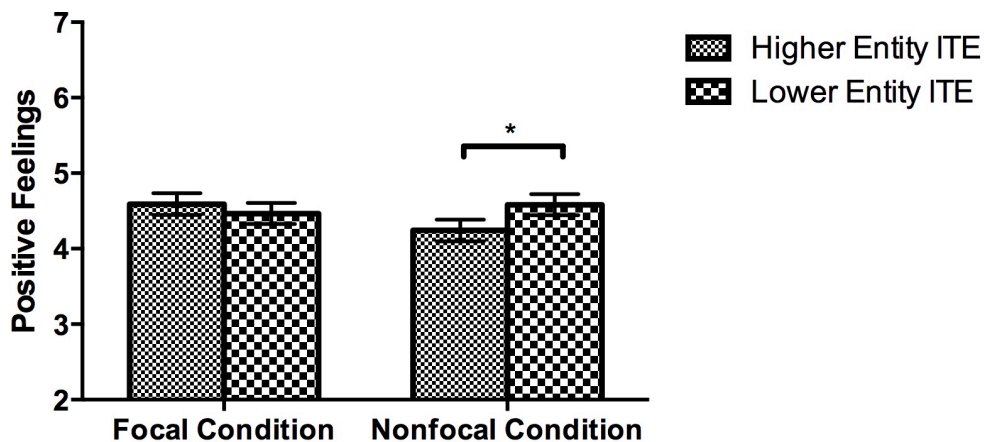


Figure 7.1. Interactive effect of person (higher entity ITE and lower entity ITE) and condition on ratings of positive feelings. Higher ratings indicate more positive feelings, lower ratings indicate more negative feelings. Error bars indicate SEM. \* $p < 0.05$ . \*\* $p < 0.01$ .

A significant Event Valence by Predictions/Experiences interaction was also found for ratings of positive feelings,  $F(1, 23) = 7.19, p = .002, \eta^2 = .25$ . Paired comparisons demonstrated that for negative events, individuals predicted significantly lower positive feelings for themselves ( $M = 2.70, SD = 0.96$ ) than they subsequently reported experiencing ( $M = 3.31, SD = 1.24$ , see Figure 7.2). Predictions of positive feelings in response to negative events by friends did not significantly differ from self-predictions or from reported experience of positive feelings in response to those events. There were no significant differences between affective predictions and experiences for positive events.

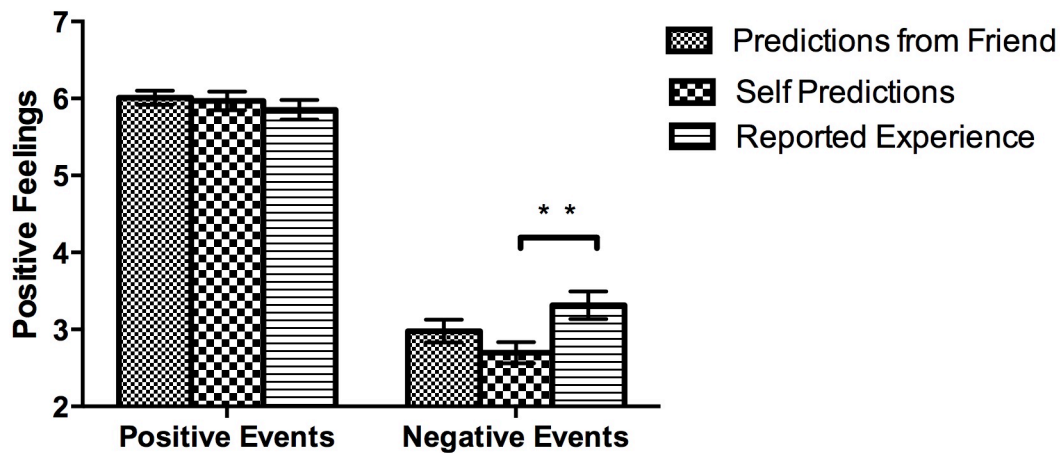


Figure 7.2. Interactive effect of event valence and predictions/experiences on ratings of positive feelings. Higher ratings indicate more positive feelings, lower ratings indicate more negative feelings. Error bars indicate SEM. \* $p < 0.05$ . \*\* $p < 0.01$ .

A significant Event Valence by Predictions/Experiences interaction was also found for calm feelings,  $F(1, 23) = 6.86, p = .003, \eta^2 = .24$ , but the pattern of means was different. For negative events, friends predicted significantly higher levels of calm feelings for participants ( $M = 3.13, SD = 1.61$ ) than participants predicted for themselves ( $M = 2.66, SD = 1.32$ ). Self-predictions of calm feelings for negative events did not significantly differ from friend predictions or from reported calm experiences. By contrast, friends predicted lower levels of calm feelings for positive events ( $M = 4.51, SD = 1.69$ ) than participants in fact experienced in response to those events ( $M = 4.98, SD = 1.52$ ). Again, self-predictions of calmness did not significantly differ either from friend predictions or from reported experience of calm feelings for positive events (see Figure 7.3).

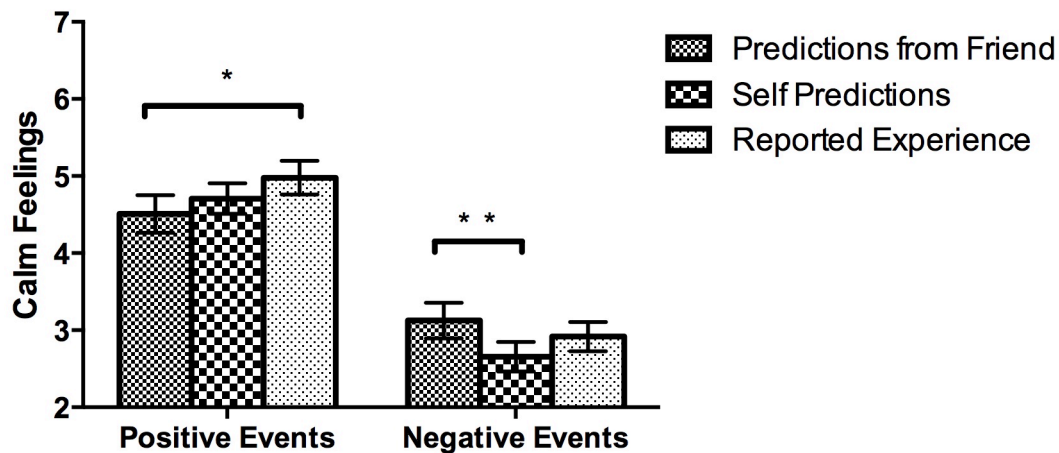


Figure 7.3. Interactive effect of event valence and predictions/experiences on ratings of calm feelings. Higher ratings indicate more calm feelings, lower ratings indicate more anxious feelings. Error bars indicate SEM. \* $p < 0.05$ . \*\* $p < 0.01$ .

Lastly, for ratings of calm feelings, a significant 3-way Event Valence x Predictions/Experiences x Focality Condition interaction qualified the previously reported 2-way interaction between Event Valence x Predictions/Experiences,  $F(1, 23) = 4.05$ ,  $p = .024$ ,  $\eta^2 = .16$ . Friends predicted lower levels of calm feelings for positive events than participants in fact experienced only in the focal condition, in which both friend predictions ( $M = 4.44$ ,  $SD = 1.69$ ) and self-predictions of calmness ( $M = 4.50$ ,  $SD = 1.37$ ) were significantly lower compared to experienced calmness ( $M = 5.25$ ,  $SD = 1.52$ ) (see Figure 7.4a). By contrast, the difference between friend and self-predictions found in the nonfocal condition demonstrated that friends made higher predictions of calmness in reaction to negative events ( $M = 3.17$ ,  $SD = 1.62$ ) compared to the participants' self-predictions ( $M = 2.58$ ,  $SD = 1.32$ ) (see Figure 7.4b).

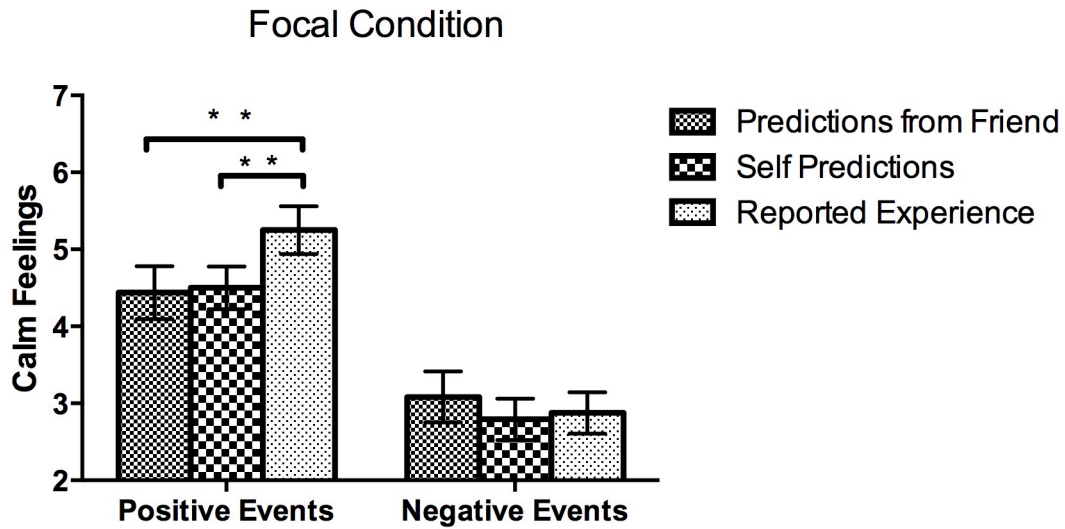


Figure 7.4a. Interactive effect of event valence, predictions/experiences, and condition on ratings of calm feelings. Higher ratings indicate more calm feelings, lower ratings indicate more anxious feelings. Error bars indicate SEM. \* $p < 0.05$ . \*\* $p < 0.01$ .

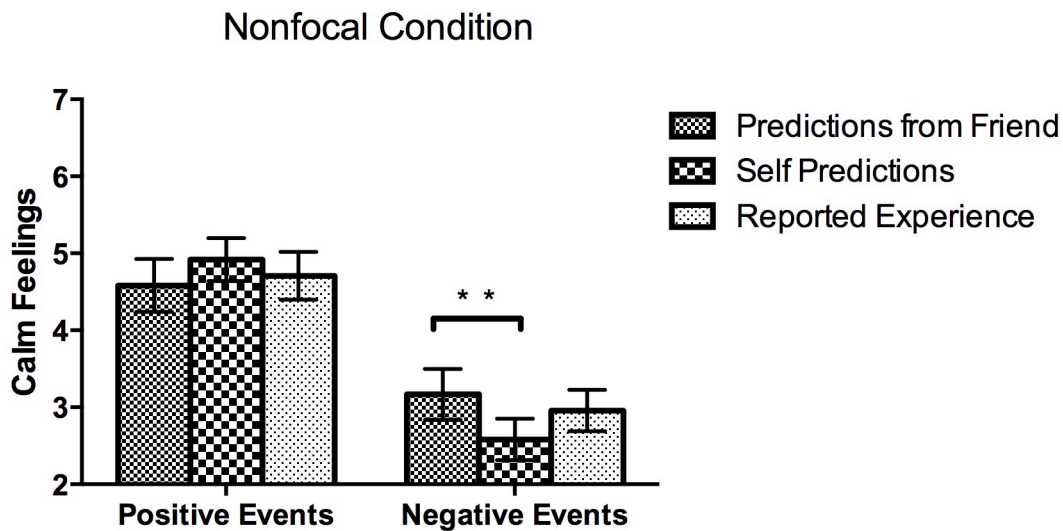


Figure 7.4b. Interactive effect of event valence, predictions/experiences, and condition on ratings of calm feelings. Higher ratings indicate more calm feelings, lower ratings indicate more anxious feelings. Error bars indicate SEM. \* $p < 0.05$ . \*\* $p < 0.01$ .

### **7.3.4 Effects of Immune Neglect**

#### **7.3.4.1 Immune Neglect (Perception of Recovery)**

To assess whether the perception of recovery from negative events (for self and for friend) influenced predictions and reported experiences of positive and calm affect, the same mixed ANOVA was conducted with perception of recovery for negative events (for self and for friend) as additional continuous independent variables. Perception of recovery was not involved in any significant main or interaction effects.

### **7.4 Discussion**

The primary aim of this study was to assess whether interpersonal affective forecasting shows similar biases due to focalism to those previously found for individual affect forecasting. The study also attempted to confirm whether self-other differences apply to real-world, self-selected events that would later be occurring. The findings demonstrate that the differences between interpersonal and individual affective forecasting depended on which of the two affective dimensions was assessed. The first hypothesis, that friend predictions would differ from individual predictions for negative events with less negative affect predicted for friend than for self, was supported for calm feelings; friends predicted significantly higher levels of calmness in response to negative events for participants than participants predicted for themselves. Whether the difference in predictions for self and friend is due to differences in the perception of emotional intensity, perspective taking, or the recognition of others' coping strategies is not ascertainable in this study.

There are two likely explanations for finding differences in predictions for self and for friends for composites of calm and anxious feelings but not for positive and negative feelings. First, the differences could be due to the phrasing of the questionnaire items; “Positive” and “negative” may be more abstract compared to “calm” and “anxious” labels for targeted affect. As such, participants might have been able to apply similar heuristics for self and friend predictions for general emotions (“positive” and “negative”) but not for more distinct emotions (“calm” and “anxious”). Another possible explanation could be that “calm” and “anxious” feelings are more self-relevant and attenuate responses (and errors) for self-views compared to views for friends. In either case, the distinction between affect predictions for self and for others has not been found though often suspected, and this may be due to the generalised wording of questionnaires; much of the research in affective forecasting is limited to only positive and negative emotion adjectives and one-item ratings of general happiness.

The second hypothesis, that both friend and individual predictions would differ from reported experience (for positive and negative events) in the focal condition, was only supported for the predictions and experiences of calm feelings for positive events, but not for positive feelings. However, the effect was in the opposite direction. Rather than an overprediction of calmness, participants in the focal condition underpredicted calmness for both themselves and their friends. The focal manipulation may have produced effects for calm feelings but not positive feelings due to similar reasons listed above. There may be a more general concept for “positive” and “negative” emotions, or

something unique about “calm” and “anxious” feelings accounting for this difference. It is difficult to reconcile this finding of bias (both individual and interpersonal) in the focal condition with the results from the manipulation check for focalism, which found confirmatory effects in the negative but not positive event condition. However, the analysis did demonstrate that those in the focal condition took mitigating events more into account for positive events than negative events. As such, the manipulation check did not map onto the manipulation as there was an effect of the manipulation for calm feelings for positive events.

Regardless of assigned condition, there was not support for consistent impact bias throughout the study. Bias was found for individual predictions for positive feelings (for negative events) and for friend predictions for calm feelings (for positive events). In the first case, participant overpredicted their unhappiness to a negative event (they were happier than they had predicted being). However for calm feelings, participants underestimated their predictions of calmness for friends than compared to reported experiences. Although impact bias seems to be a fairly robust phenomenon in the literature, some researchers have not consistently found it (e.g. Hoerger et al., 2010), others found that it is less pronounced for positive events (see Dunn & Laham, 2006), and others have found underestimations of predicted happiness (Norris, Dumville, & Lacy, 2011). Hoerger, Chapman, et al. (2012) similarly found over- and under-prediction intensity errors and noted that other studies have not demonstrated a directional bias and that others have reported an underprediction bias though the research in this area tends to

report about overprediction. The researchers speculate that systematic biases might be more probable in specific situations, for instance, situations in which people neglect coping strategies. The fact that impact bias was found in this study for friend predictions (for positive events) highlights the fact that friend predictions can be biased while self-predictions not and vice versa depending on the emotions and valence of the event assessed. It is an effect that was not found in the previous studies assessing predictions in bi-phasic designs, so the effect should be interpreted with caution. Another possible explanation for not obtaining the classic impact bias may be the nature of the sampled events. Positivity likely applied to all of the participants' events as they were asked to report on positive and negative events, whereas calmness might have only applied to events that involved uncertainty. Predictions of calmness may therefore reflect more general impressions about a person's emotional temperament and be less related to event characteristics.

The third hypothesis, that partners with relatively lower entity theories about emotion would exhibit greater forecasting accuracy, was not supported by an expected Person and Prediction/Experience interaction. The more general Person x Condition interaction that was found for positive feelings demonstrated that in the Nonfocal condition, the person with higher entity ITE had significantly lower scores on positive feelings (across predictions and experiences for both negative and positive events) than the person with lower entity ITE was not foreseen. However, this effect is difficult to interpret as it is not moderated by event valence. It is possible that the person espousing

lower entity ITE may be led by the nonfocal manipulation to think about how other events might moderate their reactions (in line with their beliefs that emotions are controllable and changeable), and given that the customary motive for adjusting emotions is to feel more positive, on balance considering other factors should lead to more positive ratings and subsequent experience.

Finally, the fourth hypothesis which predicted that those scoring higher on recognition of emotional recovery (immune neglect) in self (or friend) would exhibit greater forecasting accuracy than lower scorers was not supported. It is possible that my measure of immune neglect measured something different than previous research. For instance, perception of quick recovery from negative events is an explicit assessment of a psychological recovery while immune neglect in other affective forecasting studies was measured by the failure to distinguish between events that facilitated or inhibited rationalisation (Gilbert et al., 1998) or one in which participants reported using emotional coping strategies (Hoerger et al., 2009). Future research could investigate the scope of immune neglect or further define its factors.

Although this study offers support for differences between self and friend predictions and impact bias differences, there are several limitations that must be considered. First, as the study was conducted to be more ecologically valid, participants were allowed to select their own target events, and as such, several uncontrolled factors could account for some of the effects. For instance, variance in the subjective construal of the forecasted events could have impacted differences between self-predictions and friend

predictions. In fact, the event clarity manipulation check demonstrated that participants rated their own events as more clearly imagined. Secondly, implicit theories of emotion seem to be implicated in affect forecasting, but there were no effects of Person, thus within friend pairs there may not be sufficient variation in beliefs about emotion to highlight any effects on forecasting.

## Chapter 8

### **Conclusions and Implications**

#### **8.0 Abstract**

This chapter summarises the main findings from the research conducted for this thesis and integrates the findings into the broader context of existing literature in affective forecasting. Consistent and discrepant findings across studies are highlighted and discussed. This discussion is followed by the consideration of open questions that still need to be addressed as well as limitations and suggested future directions for research in this area. Finally, implications of the present research are considered.

#### **8.1 Main Findings**

The main aim of this research was to investigate interpersonal predictions of future affect and compare these to individual predictions. In doing so, the studies presented in this thesis investigated the role of multiple factors that influence affective predictions, prediction accuracy, and prediction recall. The studies can be viewed as being comprised of two main clusters in terms of methods and events: Studies 1, 2, and 3 assessed predictions to upcoming reasoning tests and academic results, and Studies 4, 5, and 6 concerned predictions for self-identified everyday events. All studies asked participants to make individual and interpersonal affect predictions but only the first two studies and Study 6 assessed prediction accuracy through the comparison of participants'

ratings of predicted affect for future events with their ratings of actual experienced affect following corresponding events.

Overall, evidence for the lack of differences between individual and interpersonal predictions was found in line with Pollmann and Finkenauer's (2009) findings. There were, however, instances when differences were found and these involved more real-world contexts. Classic impact bias (over-estimated predictions of future affect indicated by differences between predicted and experienced affect) was found in several studies for either self- or friend-predictions (or both). Study 6, interestingly, showed reverse impact bias for ratings of calm feelings. Implicit theories of emotion, one of the main factors assessed in this research, did not influence forecasting accuracy throughout studies; there were no significant differences between pairs of participants depending on their implicit theories of emotion scores. It did, however, have an effect in recalled predictions. In Study 2, the higher entity ITE person's original predictions differed significantly from their recalled predictions in the distant condition. Even so, when implicit theories of emotion were manipulated between pairs of participants, there was no impact on affect predictions or prediction accuracy. There were more pronounced differences in calm scores (in the incremental condition) between negative-feedback and positive-feedback for the participant higher in entity ITE in Study 1. Based on the studies reported in this thesis, it seems likely that people use beliefs about typical emotional reactions to events to predict both individual and interpersonal affect, and that these are resistant to influence.

## 8.2 Consistent Findings

### *Self-other prediction similarities*

In the present studies, most individual and interpersonal predictions of future affect did not differ from one another. Study 5 provided the simplest example of this finding, demonstrating no differences in the predictions of affect based on the target of the prediction (either self or friend). In this study, the predictions were made independently from each other with one group making self-predictions and another group predicting for friends. Results from Studies 1, 2, and 4 (all repeated within-subject designs) also found no self-other differences between predictions. Taken together, the results from these studies correspond with Pollmann and Finkenauer's (2009) which also did not find differences in self-other predictions. The lack of differences between individual and interpersonal predictions supports the idea that individuals are using intuitive theories of typical reactions to emotional events (e.g. prototypes, schemas, scripts, stereotypes, etc.) to make predictions. They seem to be using this strategy rather than making predictions by taking into consideration differences between themselves and their friends for certain circumstances or by making different self-other predictions due to the emotion intensity bias (others' emotional experience as less intense). This may imply that participants were not using specific knowledge about their own idiosyncratic emotional reactions when making predictions. Another potential explanation for the lack of differences in self- and friend-predictions could be that participants asked themselves how they would react prior to making predictions for their friends and used these

reactions for their friend predictions as well. As self-other differences were predicted due to the emotional intensity bias, to additional perspective taking, and to recognition of others' coping strategies, future studies could further investigate these factors (for instance, manipulating the access to others' emotional behaviours or expressions, perspectives, and/or coping strategies) to more directly investigate their effects on self-other differences on emotion predictions.

### *Impact bias*

Instances of classic impact bias were found in the studies reported in this thesis that assessed prediction accuracy when comparing affect predictions to reported experience. Specifically, Studies 1 and 2 demonstrated consistent instances of the impact bias, particularly in relation to the number of comparisons conducted. In Study 1, participants predicted that their feelings would be more pleasant and more unpleasant than they actually were (with the exception of predictions of calm feelings for friends). Similarly, in Study 2, participants predicted more unpleasant feelings for both themselves and their friends than they subsequently experienced (only unpleasant feelings were assessed in this study). These results provide evidence for the impact bias both at the individual and interpersonal level. In a sense, this could imply that the assumed causes of impact bias may operate equivalently for self- and friend-predictions.

### *Implicit theories of emotion*

The studies found no evidence that participants' implicit theories of emotion were related to affective forecasting, contrary to my hypotheses. It was thought that those with less entity views (incremental theorists) would have more insight into their own and others' emotions, and that their predictions would be more accurate compared to those with entity views. This was not confirmed, as those holding more incremental theories did not exhibit greater forecasting accuracy than those with more entity theories. Additionally, when ITE were manipulated between pairs of participants in Study 1, the pairs did not differ in their predictions of future affect. Furthermore, Studies 4 and 5 demonstrated that ITE were not associated with affect predictions. These results provide considerable evidence that implicit theories of emotion are not a strong moderator in affective predictions.

Interestingly, and unexpectedly, implicit theories of emotion were related to the recall of emotion predictions. In Study 2, in the distant condition, the person with higher entity implicit theories of emotion in the dyad predicted lower positive feelings than he or she subsequently recalled predicting. It is possible that entity theorists assume that their predictions match reality because they believe that events have a consistent impact. Another possible implication of this finding is that the failure to remember past emotion predictions is related to a belief that emotions are not controllable or changeable. In either case, the finding needs further corroboration as a comparable effect was not found in Study 1.

### *Recalled predictions of affect*

Studies 1 and 2 found similar results with regards to recalled predictions of affect. Both showed differences between recalled predictions and original predictions, and that recalled predictions for self and friend were positively correlated with their corresponding original predictions. Further both studies demonstrated that correlations between experienced affect and recalled predictions when controlling for original predictions were mostly non-significant. For both these studies, the recall of predictions was apparently not directly influenced by recent experiences, thus failing to corroborate Meyvis et al.'s (2010) findings. The fact that experienced affect did not appear to distort recalled predictions makes it unlikely that experience-distorted memory for predictions is the main factor preventing people from correcting future predictions. In fact, the similar patterns of recall for self- and friend-predictions further suggest that (own) experience of affect is not driving inaccuracy. Even when participants never actually experienced the target event, they still misremembered predictions in the same direction.

### *Information de-biasing*

Studies 3 and 4 found no differences in affective forecasting (for either self or friend) depending on prior de-biasing information. In Study 3, it was expected that those who had information about the bias would be able to avoid it. However, the results did not completely support this hypothesis. This was corroborated by a similar finding in Study 4 which found no differences in predictions of intensity and duration between any

of the conditions (two conditions providing information about impact bias and a third about a different memory bias). From these consistent findings, it seems that affective predictions (both individual and interpersonal) are fairly stable and not easily influenced by prior information presented.

### **8.3 Discrepant Findings**

#### *Self-other prediction differences*

While individual and interpersonal predictions were mostly similar, Studies 3 and 6 found some differences in self-other predictions. Study 3 indicated that participants predicted less unhappiness for their friends than for themselves across conditions. Study 6 demonstrated distinctions between interpersonal and individual affective forecasting depending on the emotion assessed. For calm reactions to negative events, friends predicted significantly higher levels of calmness for participants than participants predicted for themselves, but this was not the case for positive feelings. The fact that both Study 3 and 6 found self-friend differences in the same direction may be indicative of participants' recognition that events would not be overly negative for others, or their awareness that friends have adequate coping mechanisms.

It is worth considering why there were differences in these studies but not the other studies. The self-friend differences in Study 3 could be due to its divergent design from the other studies; Study 3 assessed affect predictions for exam results that participants were to receive. This expectation of results that bear real-world consequences makes self-other differences more likely. Students could have rated predictions more

conservatively if they did not believe the situation would actually affect their lives. For instance, Pollmann and Finkenauer's (2009) "important test assessing their cognitive abilities" may differ from exam results which have actual immediate consequences. Participants may thus be more concerned about their own marks and the consequences of poor results than their friends' results, and similarly, more concerned for consequences for real-world situations compared to experimental situations. This explanation would be compatible with the finding that friends were expected to be significantly less unhappy following low marks compared to self-predictions for the same low marks.

The source of Study 6's self-other differences are somewhat more complicated to determine. The study assessed self-selected events like those in Studies 4 and 5 which did not find self-other differences. However, the participants in these studies did not expect to be later asked what their emotions were. Study 6's participants knew that they would have to report their experienced emotions following the target events. These events may thus have been more significant or imagined more carefully. Another difference in Study 6 is that it assessed ratings for both positive and negative self-selected events while the other studies that used self-selected events were limited to negative events. So it could be that being asked for another set of personal and interpersonal predictions for positive events had some effect. For instance, considering multiple, different valenced events could have caused participants to select more divergent events, for which negative events may have been more self-relevant. Future research could manipulate the relevancy of the target event to assess self-other prediction and accuracy differences.

### *Inconsistent impact bias*

Study 6 further differed from the other studies presented in this thesis finding inconsistent bias throughout the study. Bias was only found for individual predictions for positive feelings (for negative events) and for friend predictions for calm feelings (for positive events). Additional inquiry is needed to investigate these divergent results with regards to the impact bias. Again, it could be that the variety of events selected in Study 6 is driving some of the inconsistent bias. Overestimations of predictions are most common in affective forecasting, however, there are studies that find no directional impact bias or even an underestimation bias. Hoerger et al. (2012) propose that systematic biases might occur for certain situations. As Study 6 had the most varied events of the studies reported in this thesis, this may account for the divergent finding of underpredictions. The inconsistencies might also be due to the applicability of the specific affect measures to the events. Calmness might be a less relevant emotion for these situations similar to the differential effects from the RAT manipulation in Studies 1 and 2. Future studies should more closely investigate the impact of contextual differences on affect predictions and bias, and systematically test different emotions.

### **8.4 Alternative Explanations for Impact Bias**

Recently, affect forecasting research has faced criticisms concerning the appropriateness of its methods. Levine et al. (2012) have developed an important critique, focusing on the fact that the wording of the questions about affect at the time of

prediction and at the time of rating experienced affect sometimes differs.<sup>13</sup> The researchers concluded that wording (and timing) affect interpretation of forecasting questions on the basis of four studies and a meta-analysis (covering 84 studies). They argue that these wording differences may account for reported impact biases. The argument is that following the target event, participants are asked a general question about their affect without referencing the specific event that participants experienced, potentially leading participants to misinterpret the focus of the question. In other words, participants are not usually asked a question about their experienced affect in specific response to the event (“How happy are you feeling about winning the game?”) but rather a general question about how they are currently feeling (“How happy are you feeling?”). This contrasts with the implicit focus of the original affect-prediction question which is always asked in relation to the anticipated event.

The findings of the present studies that used biphasic designs to assess both affect predictions and reported experience (Studies 1, 2, and 6), as mentioned above, demonstrated impact biases in some cases (and underprediction of affect in others). The general questions used for measuring experienced affect in Studies 1 and 2 may have led to impact bias according to Levine et al.’s (2012) theory. Study 6, however, used specific questions following the emotional events and still found impact bias (for positive feelings). A recent study has also found impact bias even when using Levine et al.’s

---

<sup>13</sup> The Levine et al. (2012) paper was published after most of the studies had been designed and the data for this thesis had been collected.

indicated specific wording. Green et al. (2013) conducted a study on empathic forecasting (in romantic relationships rather than friendships) and found evidence for the impact bias using Levine et al.'s (2012) recommendations.<sup>14</sup> These counterexamples cast doubt on the conclusion that the general wording in Studies 1 and 2 accounts for the impact bias.

## **8.5 Limitations and Future Directions**

The studies reported in this thesis are limited in that their samples were mostly homogeneous and the sample sizes were small. These limitations are common in psychological research due to convenience factors and practical and financial reasons. Even so, both these sample limitations are comparable to limitations in Pollmann and Finkenauer's (2009) studies on empathic affective forecasting. In a sense, the comparability with this authoritative work was valuable in making direct comparisons. However, it may be possible that self-other effects in affect predictions were not detected because of insufficient power. Future research may benefit from larger and more diverse samples.

A future direction for interpersonal affect prediction research is investigating interpersonal discussions of affect predictions. Thus far, all interpersonal prediction studies have been conducted without any communication of predictions between participants. It would be of great interest to see if more moderate forecasts are made after a discussion of predictions. The studies could make use of Liberman, Minson, Bryan, and

---

<sup>14</sup> The Green et al. (2013) paper was published after the studies for this thesis had been designed and conducted, and therefore, it is not previously discussed.

Ross' (2012) four-round estimation procedure. This would entail an initial round of predictions followed by revised predictions after knowing the predictions of one's partner and then a round of joint predictions, and a final round of individual predictions. These types of discussions and consensus estimates altered the naïve realism bias in Liberman and her colleague's work. Direct discussions may likewise alter impact bias. Interactions would be more powerful than the presentation of information in a less interactive format (as in Studies 3 and 4) because they involve direct consideration of yours and others' viewpoints. Research into the effects of actively "negotiating" acceptable predictions with peers would be important to investigate. An implicit assumption in affective forecasting research is that affect predictions are made alone; often predictions are made after discussions with friends or family (inaccurate predictions can also be sources of debate), thus it would be important to study these types of forecasts in ecologically appropriate settings.

As there were several open-ended measures gathered in the studies in this thesis, future studies could be designed after a more thorough investigation of the qualitative rationales participants provided for their own and their friends' affective predictions. Coding these qualitative responses may shed light onto reasons for possible divergent results from those obtained through rating scales. Another direction for interpersonal affective forecasting research is to use alternative methods to self-reported ratings of emotions on rating scales. For instance, participants could plot affect (predicted and experienced intensity and duration of discrete emotions) on graphs for an event's time

course or they could predict and report their affect on an Affect Grid (Russell, Weiss, & Mendelsohn, 1989). Whether the similarity of interpersonal forecasting hold true for different ways of measuring perceptions about future emotions beyond self-report remains to be seen.

Finally, the studies presented in this dissertation differed in methodology ranging from future predetermined lab situations to real world events to self-selected events. The design consideration of using standardised or naturally sampled events has relative advantages and disadvantages. As previously discussed, the trade-offs mainly consist of events that produce more ecological validity and those that provide greater experimental control. An open question remains as to whether the results found in affective forecasting differ depending on this aspect of methodology. Currently, there has not been a review on how commonly each of these kinds of events have been sampled in previous affective forecasting research. Further research is needed on the influence of experimental context on affect predictions and accuracy.

## **8.6 Conclusion**

Research in affective forecasting has implications in various areas, from decision-making to perceptions about medical procedures to choices about retirement savings (Halpern & Arnold, 2008; Nielsen et al., 2008; Wilson & Gilbert 2005). The present research focused on the interpersonal nature of affective predictions and provided a closer assessment of predictions for emotional reactions to reasoning tests and academic exams and to personally-identified events. The finding that interpersonal predictions are often

similar to individual predictions has the potential to help researchers form ideas about how biases work in interpersonal contexts. If self-other differences are manipulated in future studies, it is possible that biases may be differentially pronounced in interpersonal contexts.

The finding that affective forecasts (both self and other) are biased and resistant to change has some significant implications. Assuming that predictions are made drawing from a common schema of typical emotional reactions, then, notions of full agency or personal responsibility in decision making seem wishful or outdated. For instance, if common schemas keep emotion predictions (and future decisions that follow from them) manageable through the use of shortcuts or templates, then, the deviation from these templates needed to make an “informed prediction” (and thus an “informed decision”) is of interest. The fact that this process also occurs for predictions of affect (and for decisions based on these predictions) for others likewise makes the notion of informed personal decisions problematic. On a broader level, decisions for larger groups of people, for instance group or policy decisions, may require additional considerations built into the deliberation process to take impact bias and mispredictions into account.

Interpersonal implications may be more favourable. As Pollmann and Finkenauer (2009) speculate, corresponding affective predictions may lead to beneficial feelings of understanding and agreement in friendships. Thus, similar affective forecasts could contribute to feelings of similarity to one’s friend (even if it is overestimated similarity). If the actions taken towards friends due to overestimated affect predictions are similar to

the actions taken for oneself, similar (biased) forecasts could foster a sense of mutual understanding, and possibly an offer of assistance or desire to share in friend's success depending on the overestimated emotion.

In terms of academic exams, the similarity in predictions and biases may provide insights into how to best intervene for overestimations of negative affect for students; assuming that other students are not overly concerned about exam performance did not drive individual impact bias. From the present findings, it seems that a more intuitive theory of how events unfold leads to some of the prediction inaccuracy. As such, students might benefit from interventions that advocate less focal conceptions of upcoming exams (e.g., what else will you be doing that day) instead of interventions meant to normalise stress levels (e.g., everyone feels stressed). This type of intervention would work for those prepared for exams but overly concerned about possible negative outcomes.

Unquestionably, the topic of interpersonal affective forecasting has many future research applications. Interpersonal affective predictions could be further explored in various contexts, for instance, decision-making for others. It could also be explored in terms of development and learning, for instance, the extent to which children or adolescents imitate parents' emotion predictions. It is likely the case that psychological research in general has been too concerned with "the individual," and this is certainly true for research on emotions (Parkinson, 1996). However, there are many additional considerations researchers have to make when investigating perceptions of emotions when they involve other people. This thesis has laid some grounds for the consideration

of how people come to make interpersonal predictions and adds to the work in this area, confirming somewhat that interpersonal predictions are not (always) very different from individual predictions.

## References

- Arkes, H. R., & Blumer, C. (1985). The psychology of sunk cost. *Organizational Behavior and Human Decision Processes*, 35, 124-140.
- Baron, J. (1992). The effect of normative beliefs on anticipated emotions. *Journal of Personality and Social Psychology*, 63, 320-330.
- Beaman, A. L., Barnes, P. J., Klentz, B., & McQuirk, B. (1978). Increasing helping rates through information dissemination: Teaching pays. *Personality and Social Psychology Bulletin*, 4, 406-411.
- Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating emotional abilities to social functioning: A comparison of self-report and performance measures of emotional intelligence. *Journal of Personality and Social Psychology*, 91, 780-795.
- Buehler, R., & McFarland, C. (2001). Intensity bias in affective forecasting: The role of temporal focus. *Personality and Social Psychology Bulletin*, 27, 1480-1493.
- Chambers, J. R., & Suls, J. (2007). The role of egocentrism and focalism in the emotion intensity bias. *Journal of Experimental Social Psychology*, 43, 618-625.
- Christiansen, N. D., Wolcott-Burnam, S., Janovics, J. E., Burns, G. N., & Quirk, S. W. (2005). The good judge revisited: Individual differences in the accuracy of personality judgments. *Human Performance*, 18, 123-149.

- DeWall, C. N., & Baumeister, R. F. (2006). Alone but feeling no pain: Effects of social exclusion on physical pain tolerance and pain threshold, affective forecasting, and interpersonal empathy. *Journal of Personality and Social Psychology, 91*, 1-15.
- Dunn, E. W., Brackett, M. A., Ashton-James, C., Schneiderman, E., & Salovey, P. (2007). On emotionally intelligent time travel: Individual differences in affective forecasting ability. *Personality and Social Psychology Bulletin, 33*, 85-93.
- Dunn, E. W., & Laham, S. A. (2006). Affective forecasting: A user's guide to emotional time travel. In J. Forgas (Ed.), *Hearts and minds: Affective influences on social cognition and behavior* (pp. 177-193). New York: Psychology Press.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040-1048.
- Finkenauer, C., Gallucci, M., van Dijk, W. W., & Pollmann, M. (2007). Investigating the role of time in affective forecasting: temporal influences on forecasting accuracy. *Personality & Social Psychology Bulletin, 33*, 1152-1166.
- Fischhoff, B. (1977). Perceived informativeness of facts. *Journal of Experimental Psychology: Human Perception and Performance, 3*, 349-358.
- Gardner, R. M., & Dalsing, S. (1986). Misconceptions about psychology among college students. *Teaching of Psychology, 13*, 32-34.
- Gilbert, D. T., Driver-Linn, E., & Wilson, T. D. (2002). The trouble with Vronsky: Impact bias in the forecasting of future affective states. In L. F. Barrett & P. Salovey

- (Eds.), *The wisdom in feeling: Psychological processes in emotional intelligence* (pp. 114-143). New York: Guilford.
- Gilbert, D. T., Pinel, E. C., Wilson, T. D., Blumberg, S. J., & Wheatley, T. P. (1998). Immune neglect: a source of durability bias in affective forecasting. *Journal of Personality and Social Psychology*, *75*, 617-638.
- Green, J. D., Davis, J. L., Luchies, L. B., Coy, A. E., Van Tongeren, D. R., Reid, C. A., & Finkel, E. J. (2013). Victims versus perpetrators: Affective and empathic forecasting regarding transgressions in romantic relationships. *Journal of Experimental Social Psychology*, *49*, 329-333.
- Halpern, J., & Arnold, R. M. (2008). Affective forecasting: An unrecognized challenge in making serious health decisions. *Journal of General Internal Medicine*, *23*, 1708-1712.
- Hoerger, M. (2012). Coping strategies and immune neglect in affective forecasting: Direct evidence and key moderators. *Judgment and Decision Making*, *7*, 86–96.
- Hoerger, M., Chapman, B. P., Epstein, R. M., & Duberstein, P. R. (2012). Emotional intelligence: A theoretical framework for individual differences in affective forecasting. *Emotion*, *12*, 716-725.
- Hoerger, M., & Quirk, S. W. (2010). Affective forecasting and the Big Five. *Personality and Individual Differences*, *49*, 972-976.

- Hoerger, M., Quirk, S. W., Chapman, B. P., & Duberstein, P. R. (2012). Affective forecasting and self-rated symptoms of depression, anxiety, and hypomania: Evidence for a dysphoric forecasting bias. *Cognition & Emotion, 26*, 1098-1106.
- Hoerger, M., Quirk, S. W., Lucas, R. E., & Carr, T. H. (2009). Immune neglect in affective forecasting. *Journal of Research in Personality, 43*, 91-94.
- Hoerger, M., Quirk, S. W., Lucas, R. E., & Carr, T. H. (2010). Cognitive determinants of affective forecasting errors. *Judgment and Decision Making, 5*, 365-373.
- Igou, E. R. (2004). Lay theories in affective forecasting: The progression of affect. *Journal of Experimental Social Psychology, 40*, 528-534.
- Igou, E. R. (2008). "How long will I suffer?" versus "How long will you suffer?" A self-other effect in affective forecasting. *Journal of Personality and Social Psychology, 95*, 899-917.
- Jordan, A. H., Monin, B., Dweck, C. S., Lovett, B. J., John, O. P., & Gross, J. J. (2011). Misery has more company than people think: underestimating the prevalence of others' negative emotions. *Personality & Social Psychology Bulletin, 37*, 120-135.
- Kahneman, D., & Snell, J. (1990). Predicting utility. In R. Hogarth (Ed.), *Insights in decision making* (pp. 295-310). Chicago: University of Chicago Press.
- Kahneman, D., & Tversky, A. (1973). On the psychology of prediction. *Psychological Review, 80*, 237-251.
- Kassam, K. S., Gilbert, D. T., Boston, W. A., & Wilson, T. D. (2008). Time discounting: Present selfishness or future anhedonia? *Journal of Experimental Social Psychology, 44*, 115-124.

44, 1533-1537.

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York, NY: Guilford Press.

Krueger, J., & Clement, R. W. (1997). Estimates of social consensus by majorities and minorities: The case for social projection. *Personality and Social Psychology Review, 1*, 299-313.

Lam, K. C., Buehler, R., McFarland, C., Ross, M., & Cheung, I. (2005). Cultural differences in affective forecasting: The role of focalism. *Personality and Social Psychology Bulletin, 31*, 1296-1309.

Levine, L. J., Lench, H. C., Kaplan, R. L., & Safer, M. A. (2012). Accuracy and artifact: reexamining the intensity bias in affective forecasting. *Journal of Personality and Social Psychology, 103*, 584-605.

Liberman, V., Minson, J. A., Bryan, C. J., & Ross, L. (2012). Naïve realism and capturing the “wisdom of dyads”. *Journal of Experimental Social Psychology, 48*, 507-512.

Loewenstein, G. (2007). Affect regulation and affective forecasting. In J. Gross (Ed.), *Handbook of affect regulation* (pp. 180-203). New York: The Guilford Press.

Matthews, G., Jones, D. M., & Chamberlain, A. G. (1990). Refining the measurement of mood: The UWIST Mood Adjective Checklist. *British Journal of Psychology, 81*, 17-42.

Loewenstein, G. F., & Schkade, D. (1999). Wouldn't it be nice? Predicting future

- feelings. In E. Diener, N. Schwartz & D. Kahneman (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 85-105). New York: Russell Sage Foundation.
- Mallett, R. K., Wilson, T. D., & Gilbert, D. T. (2008). Expect the unexpected: Failure to anticipate similarities when predicting the quality of an intergroup interaction. *Journal of Personality and Social Psychology, 94*, 265-277.
- Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. J. Sluyter (Eds.), *Emotional development and emotional intelligence: Educational implications* (pp. 4-30). New York: Basic Books.
- Mayer, J. D., Salovey, P., & Caruso, D. (2002). The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), Version 2.0. Toronto, Canada: Multi-Health Systems.
- McFarlin, D.B., & Blascovich, J. (1984). On the Remote Associates Test (RAT) as an alternative to illusory performance feedback: A methodological note. *Basic and Applied Social Psychology, 5*, 223-229.
- Meyvis, T., Ratner, R. K., & Levav, J. (2010). Why don't we learn to accurately forecast feelings? How misremembering our predictions blinds us to past forecasting errors. *Journal of Experimental Psychology. General, 139*, 579-589.
- Miller, D. T., & McFarland, C. (1987). Pluralistic ignorance: When similarity is interpreted as dissimilarity. *Journal of Personality and Social Psychology, 53*, 298-305.

- Mitchell, J. P., Macrae, C. N., & Banaji, M. R. (2006). Dissociable medial prefrontal contributions to judgments of similar and dissimilar others. *Neuron, 50*, 655-663.
- Mitchell, T. R., Thompson, L., Peterson, E., & Cronk, R. (1997). Temporal adjustments in the evaluation of events: The “rosy view.” *Journal of Experimental Social Psychology, 33*, 421-448.
- Morewedge, C. K., Gilbert, D. T., & Wilson, T. D. (2005). The least likely of times: How remembering the past biases forecasts of the future. *Psychological Science, 16*, 626-630.
- Nielsen, L., Knutson, B., & Carstensen, L. L. (2008). Affect dynamics, affective forecasting, and aging. *Emotion, 8*, 318-330.
- Nisbett, R. E., & Borgida, E. (1975). Attribution and the psychology of prediction. *Journal of Personality and Social Psychology, 32*, 932-943.
- Norris, C. J., Dumville, A. G., & Lacy, D. P. (2011). Affective forecasting errors in the 2008 election: Underpredicting happiness. *Political Psychology, 32*, 235-249.
- Novemsky, N., & Ratner, R. (2003). The time course and impact of consumers' erroneous beliefs about hedonic contrast effects. *Journal of Consumer Research, 29*, 507-516.
- Parkinson, B. (1995). *Ideas and realities of emotion*. London: Routledge.
- Parkinson, B. (1996). Emotions are social. *British Journal of Psychology, 87*, 663-683.
- Petrides, K., & Furnham, A. (2006). The role of trait emotional intelligence in a gender-specific model of organizational variables. *Journal of Applied Social Psychology, 36*, 552-569.

- Pollmann, M. M. H., & Finkenauer, C. (2009). Empathic forecasting: How do we predict other people's feelings? *Cognition & Emotion*, *23*, 978-1001.
- Ross, L., Greene, D., & House, P. (1977). The false consensus effect: An egocentric bias in social perception and attribution processes. *Journal of Experimental Social Psychology* *13*, 279-301.
- Russell, J. A., Weiss, A., & Mendelsohn, G. A. (1989). Affect grid: A single-item scale of pleasure and arousal. *Journal of Personality and Social Psychology*, *57*, 493-502.
- Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology*, *45*, 513-523.
- Sevdalis, N., & Harvey, N. (2009). Reducing the impact bias in judgments of post-decisional affect: Distraction or task interference?, *Judgment and Decision Making*, *4*, 287-296.
- Sherman, S. J. (1980). On the self-erasing nature of errors of prediction. *Journal of Personality and Social Psychology*, *39*, 211-221.
- Simons, G., & Parkinson, B. (2009). Time-dependent observational and diary methodologies and their use in studies of social referencing and interpersonal emotion regulation. *21<sup>st</sup> Century Society*, *4*, 175-186.

- Suls, J., & Wan, C. K. (1987). In search of the false-uniqueness phenomenon: Fear and estimates of social consensus. *Journal of Personality and Social Psychology*, *52*, 211-217.
- Tamir, M., John, O. P., Srivastava, S., & Gross, J. J. (2007). Implicit theories of emotion: Affective and social outcomes across a major life transition. *Journal of Personality and Social Psychology*, *92*, 731-744.
- Tett, R. P., Wang, A., Gribler, J., & Martinez, A. (1997, April). Development of the self-report measures of emotional intelligence. Paper presented at the Annual Convention of the Southeastern Psychological Association, Atlanta, GA.
- Totterdell, P., Parkinson, B., Briner, R. B., & Reynolds, S. (1997). Forecasting feelings: The accuracy and effects of self-predictions of mood. *Journal of Social Behavior and Personality*, *12*, 631-650.
- Van Boven, L., & Loewenstein, G. (2003). Social projection of transient drive states. *Personality & Social Psychology Bulletin*, *29*, 1159-1168.
- Van Boven, L., & Loewenstein, G. (2005). Cross-situational projection. In M. D. Alicke, D. A. Dunning, & J. I. Krueger (Eds.), *The self in social judgment* (pp. 43-64). New York: Taylor & Francis.
- Vaughan, E. D. (1977). Misconceptions about psychology among introductory psychology students. *Teaching of Psychology*, *4*, 138-141.
- Wheeler, L., & Reis, H. T. (1991). Self-recording of everyday life events: Origins, types, and uses. *Journal of Personality*, *59*, 339-354.

- White, K., & Van Boven, L. (2012). Immediacy bias in social-emotional comparisons. *Emotion, 12*, 737-747.
- Wilhelm, P., & Perrez, M. (2004). How is my partner feeling in different daily-life settings? Accuracy of spouses' judgments about their partner's feelings at work and at home. *Social Indicators Research, 67*, 183-246.
- Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. In M. Zanna (Ed.), *Advances in Experimental Social Psychology*, (Vol. 35, pp. 345-411). New York: Elsevier.
- Wilson, T. D., & Gilbert, D. T. (2005). Knowing what to want. *Current Directions in Psychological Science, 14*, 131-134.
- Wilson, T. D., Meyers, J., & Gilbert, D. T. (2001). Lessons from the past: Do people learn from experience that emotional reactions are short-lived? *Personality and Social Psychology Bulletin, 27*, 1648-1661.
- Wilson, T. D., Wheatley, T., Meyers, J. M., Gilbert, D. T., & Axsom, D. (2000). Focalism: a source of durability bias in affective forecasting. *Journal of Personality and Social Psychology, 78*, 821-836.
- Zaki, J., & Ochsner, K. (2012). The neuroscience of empathy: progress, pitfalls and promise. *Nature Neuroscience, 15*, 675-680.

## Appendices

### **Appendix A: Questionnaire for Study 1**

#### At home questionnaire

Modified Implicit Theories of Emotion Scale (ITES; Tamir et al., 2007)

Tell me a little about how you feel about emotions.

(Strongly Agree, Agree, Somewhat Agree, Neither Agree nor Disagree, Somewhat Disagree, Disagree, Strongly Disagree)

Everyone can learn to control their emotions.

If they want to, people can change the emotions that they have.

No matter how hard they try, people can't really change the emotions that they have.

The truth is, people have very little control over their emotions.

I can learn to control my emotions.

If I want to, I can change the emotions that I have.

No matter how hard I try, I can't really change the emotions that I have.

The truth is, I have very little control over my emotions.

#### Questionnaire completed during the study

You will now be asked to complete several questions about your emotions and the emotions of your friend (study partner). When answering questions using rating scales, select the option that best corresponds to your answers.

The next questions were rated on a 1-7 scale with the following endpoints:

How positive are you feeling at this moment?

Not at all positive (1) Extremely positive (7)

How negative are you feeling at this moment?

Not at all negative (1) Extremely negative (7)

How calm are you feeling at this moment?

Not at all calm (1) Extremely calm (7)

How anxious are you feeling at this moment?

Not at all anxious (1) Extremely anxious (7)

How positive do YOU expect to feel following good performance on a test of your reasoning abilities?

Not at all positive (1) Extremely positive (7)

How negative do YOU expect to feel following good performance on a test of your reasoning abilities?

Not at all negative (1) Extremely negative (7)

How calm do YOU expect to feel following good performance on a test of your reasoning abilities?

Not at all calm (1) Extremely calm (7)

How anxious do YOU expect to feel following good performance on a test of your reasoning abilities?

Not at all anxious (1) Extremely anxious (7)

How positive do YOU expect to feel following bad performance on a test of your reasoning abilities?

Not at all positive (1) Extremely positive (7)

How negative do YOU expect to feel following bad performance on a test of your reasoning abilities?

Not at all negative (1) Extremely negative (7)

How calm do YOU expect to feel following bad performance on a test of your reasoning abilities?

Not at all calm (1) Extremely calm (7)

How anxious do YOU expect to feel following bad performance on a test of your reasoning abilities?

Not at all anxious (1) Extremely anxious (7)

How positive do you expect YOUR FRIEND to feel following good performance on a test of their reasoning abilities?

Not at all positive (1) Extremely positive (7)

How negative do you expect YOUR FRIEND to feel following good performance on a test of their reasoning abilities?

Not at all negative (1) Extremely negative (7)

How calm do you expect YOUR FRIEND to feel following good performance on a test of their reasoning abilities?

Not at all calm (1) Extremely calm (7)

How anxious do you expect YOUR FRIEND to feel following good performance on a test of their reasoning abilities?

Not at all anxious (1) Extremely anxious (7)

How positive do you expect YOUR FRIEND to feel following bad performance on a test of their reasoning abilities?

Not at all positive (1) Extremely positive (7)

How negative do you expect YOUR FRIEND to feel following bad performance on a test of their reasoning abilities?

Not at all negative (1) Extremely negative (7)

How calm do you expect YOUR FRIEND to feel following bad performance on a test of their reasoning abilities?

Not at all calm (1) Extremely calm (7)

How anxious do you expect YOUR FRIEND to feel following bad performance on a test of their reasoning abilities?

Not at all anxious (1) Extremely anxious (7)

Questionnaire completed after receiving the Remote Associates Test feedback

How positive are you feeling at this moment?

Not at all positive (1) Extremely positive (7)

How negative are you feeling at this moment?

Not at all negative (1) Extremely negative (7)

How calm are you feeling at this moment?

Not at all calm (1) Extremely calm (7)

How anxious are you feeling at this moment?

Not at all anxious (1) Extremely anxious (7)

Participants then completed the Modified Implicit Theories of Emotion Scale (ITES)

At the beginning of this questionnaire you were asked to complete several questions about your emotions and the emotions of your friend (study partner). Please recall what you rated previously for the following items.

What did you rate previously for: How positive do YOU expect to feel following good performance on a test of your reasoning abilities?  
Not at all positive (1) Extremely positive (7)

What did you rate previously for: How negative do YOU expect to feel following good performance on a test of your reasoning abilities?  
Not at all negative (1) Extremely negative (7)

What did you rate previously for: How calm do YOU expect to feel following good performance on a test of your reasoning abilities?  
Not at all calm (1) Extremely calm (7)

What did you rate previously for: How anxious do YOU expect to feel following good performance on a test of your reasoning abilities?  
Not at all anxious (1) Extremely anxious (7)

What did you rate previously for: How positive do YOU expect to feel following bad performance on a test of your reasoning abilities?  
Not at all positive (1) Extremely positive (7)

What did you rate previously for: How negative do YOU expect to feel following bad performance on a test of your reasoning abilities?  
Not at all negative (1) Extremely negative (7)

What did you rate previously for: How calm do YOU expect to feel following bad performance on a test of your reasoning abilities?  
Not at all calm (1) Extremely calm (7)

What did you rate previously for: How anxious do YOU expect to feel following bad performance on a test of your reasoning abilities?  
Not at all anxious (1) Extremely anxious (7)

What did you rate previously for: How positive do you expect YOUR FRIEND to feel following good performance on a test of their reasoning abilities?  
Not at all positive (1) Extremely positive (7)

What did you rate previously for: How negative do you expect YOUR FRIEND to feel following good performance on a test of their reasoning abilities?  
Not at all negative (1) Extremely negative (7)

What did you rate previously for: How calm do you expect YOUR FRIEND to feel following good performance on a test of their reasoning abilities?

Not at all calm (1) Extremely calm (7)

What did you rate previously for: How anxious do you expect YOUR FRIEND to feel following good performance on a test of their reasoning abilities?

Not at all anxious (1) Extremely anxious (7)

What did you rate previously for: How positive do you expect YOUR FRIEND to feel following bad performance on a test of their reasoning abilities?

Not at all positive (1) Extremely positive (7)

What did you rate previously for: How negative do you expect YOUR FRIEND to feel following bad performance on a test of their reasoning abilities?

Not at all negative (1) Extremely negative (7)

What did you rate previously for: How calm do you expect YOUR FRIEND to feel following bad performance on a test of their reasoning abilities?

Not at all calm (1) Extremely calm (7)

What did you rate previously for: How anxious do you expect YOUR FRIEND to feel following bad performance on a test of their reasoning abilities?

Not at all anxious (1) Extremely anxious (7)

Gender?

Male

Female

Age

\_\_\_\_\_ in years

How long have you known each other? \_\_\_\_\_ years \_\_\_\_\_ months

## Appendix B: Condition Primes for Study 1

### Incremental Theories of Emotion Condition

Results from the emotion questionnaire filled out by our participants at the beginning of the study and previous studies indicate that people in general view emotions as controllable. That is, people can learn to control their emotions and change their emotions on command.

Participants highly endorsed statements such as:

<input checked="" type="checkbox"/>	Everyone can learn to control their emotions.
<input checked="" type="checkbox"/>	If they want to, people can change the emotions that they have.
<input checked="" type="checkbox"/>	I can learn to control my emotions.
<input checked="" type="checkbox"/>	If I want to, I can change the emotions that I have.

This may stem from the fact that there are many ways to control emotions, e.g. denying, intensifying, weakening, curtailing, and/or masking them to obtain a desired outcome in different situations.

Vividly imagine three recent situations in which you could completely control your emotion/s. Take 2-5 minutes to describe the scenarios.

Situation 1:

Situation 2:

Situation 3:

## Entity Theories of Emotion Condition

Results from the emotion questionnaire filled out by our participants at the beginning of the study and previous studies indicate that people in general view emotions as not controllable. That is, people cannot learn to control their emotions and cannot change their emotions on command.

Participants highly endorsed statements such as:

<input checked="" type="checkbox"/>	No matter how hard they try, people can't really change the emotions they have.
<input checked="" type="checkbox"/>	The truth is, people have very little control over their emotions
<input checked="" type="checkbox"/>	No matter how hard I try, I can't really change the emotions I have.
<input checked="" type="checkbox"/>	The truth is, I have very little control over my emotions.

This may stem from the fact that there are not many ways to control emotions and different situations affect people differently.

Vividly imagine three recent situations in which you could not completely control your emotion/s. Take 2-5 minutes to describe the scenarios.

Situation 1:

Situation 2:

Situation 3:

## Appendix C: RAT Conditions for Study 1 and Study 2

Positive Feedback Condition

Remote Associates Test

The following is a test of reasoning abilities developed in the United States. Each of the ten problems below consists of three “clue” words. For each problem, please think of a fourth word that relates to each of the other three “clue” words. Write your response on the line alongside each problem. You will have 3 minutes to complete the test.

---

*Example:*

Elephant–Lapse–Vivid      *Answer:* Memory

Athletes-Web-Rabbit      Foot

Shelf-Read-End      Book

Sea-Home-Stomach      Sick

Car-Swimming-Cue      Pool

Board-Magic-Death      Black

Walker-Main-Sweeper      Street

Cookies-Sixteen-Heart      Sweet

Chocolate-Fortune-Tin      Cookie

Lounge-Hour-Drink      Cocktail

Keel-Show-Row      Boat

Positive feedback given: “You performed above average on this test as compared to the other participants.”

## Negative Feedback Condition

### Remote Associates Test

The following is a test of reasoning abilities developed in the United States. Each of the ten problems below consists of three “clue” words. For each problem, please think of a fourth word that relates to each of the other three “clue” words. Write your response on the line alongside each problem. You will have 3 minutes to complete the test.

---

*Example:*

Elephant–Lapse–Vivid      *Answer:* Memory

Bass-Complex-Sleep      Deep

Chamber-Staff-Box      Music

Desert-Ice-Spell      Dry

Base-Show-Dance      Ball

Inch-Deal-Peg      Square

Soap-Shoe-Tissue      Box

Blood-Music-Cheese      Blue

Skunk-Kings-Boiled      Cabbage

Jump-Kill-Bliss      Joy

Shopping-Washer-Picture      Window

Negative feedback given: “You performed below average on this test as compared to the other participants.”

## **Appendix D: Questionnaire for Study 2**

### At home questionnaire/ Questionnaire completed during the study

Those in the distant condition completed the following questionnaire at home except for the Implicit Theories of Emotion Scale (ITES; Tamir et al., 2007) which they completed during the study. Those in the recent condition completed only the first two items and the ITES at home and completed the rest of the items during the study.

You will now be asked to complete several questions about your emotions. When answering questions using rating scales, select the option that best corresponds to your answers.

The next questions were rated on a 1-7 scale with the following endpoints and midpoints.

How positive or negative are you feeling at this moment?  
Extremely negative (1) Neutral (4) Extremely positive (7)

How calm or anxious are you feeling at this moment?  
Extremely anxious (1) Neutral (4) Extremely calm (7)

How positive or negative do YOU expect to feel following good performance on a test of your reasoning abilities?  
Extremely negative (1) Neutral (4) Extremely positive (7)

How calm or anxious do YOU expect to feel following good performance on a test of your reasoning abilities?  
Extremely anxious (1) Neutral (4) Extremely calm (7)

How positive or negative do YOU expect to feel following bad performance on a test of your reasoning abilities?  
Extremely negative (1) Neutral (4) Extremely positive (7)

How calm or anxious do YOU expect to feel following bad performance on a test of your reasoning abilities?  
Extremely anxious (1) Neutral (4) Extremely calm (7)

How positive or negative do you expect YOUR FRIEND to feel following good performance on a test of their reasoning abilities?  
Extremely negative (1) Neutral (4) Extremely positive (7)

How calm or anxious do you expect YOUR FRIEND to feel following good performance on a test of their reasoning abilities?

Extremely anxious (1) Neutral (4) Extremely calm (7)

How positive or negative do you expect YOUR FRIEND to feel following bad performance on a test of their reasoning abilities?

Extremely negative (1) Neutral (4) Extremely positive (7)

How calm do you expect YOUR FRIEND to feel following bad performance on a test of their reasoning abilities?

Extremely anxious (1) Neutral (4) Extremely calm (7)

Participants were then given the Implicit Theories of Emotion Scale (ITES; Tamir et al., 2007)

Questionnaire completed after receiving the Remote Associates Test feedback

How positive or negative are you feeling at this moment?

Extremely negative (1) Neutral (4) Extremely positive (7)

How calm or anxious are you feeling at this moment?

Extremely anxious (1) Neutral (4) Extremely calm (7)

Previously you were asked to complete several questions about your emotions and the emotions of your friend (study partner). Please recall what you rated previously for the following items.

What did you rate previously for: How positive or negative do YOU expect to feel following good performance on a test of your reasoning abilities?

Extremely negative (1) Neutral (4) Extremely positive (7)

What did you rate previously for: How calm or anxious do YOU expect to feel following good performance on a test of your reasoning abilities?

Extremely anxious (1) Neutral (4) Extremely calm (7)

What did you rate previously for: How positive or negative do YOU expect to feel following bad performance on a test of your reasoning abilities?

Extremely negative (1) Neutral (4) Extremely positive (7)

What did you rate previously for: How calm or anxious do YOU expect to feel following bad performance on a test of your reasoning abilities?

Extremely anxious (1) Neutral (4) Extremely calm (7)

What did you rate previously for: How positive or negative do you expect YOUR FRIEND to feel following good performance on a test of their reasoning abilities?  
Extremely negative (1) Neutral (4) Extremely positive (7)

What did you rate previously for: How calm or anxious do you expect YOUR FRIEND to feel following good performance on a test of their reasoning abilities?  
Extremely anxious (1) Neutral (4) Extremely calm (7)

What did you rate previously for: How positive or negative do you expect YOUR FRIEND to feel following bad performance on a test of their reasoning abilities?  
Extremely negative (1) Neutral (4) Extremely positive (7)

What did you rate previously for: How calm or anxious do you expect YOUR FRIEND to feel following bad performance on a test of their reasoning abilities?  
Extremely anxious (1) Neutral (4) Extremely calm (7)

Participants were then asked demographic items similar to Study 1.

## Appendix E: Material Covered for Study 3

### Interpersonal Affective Forecasting

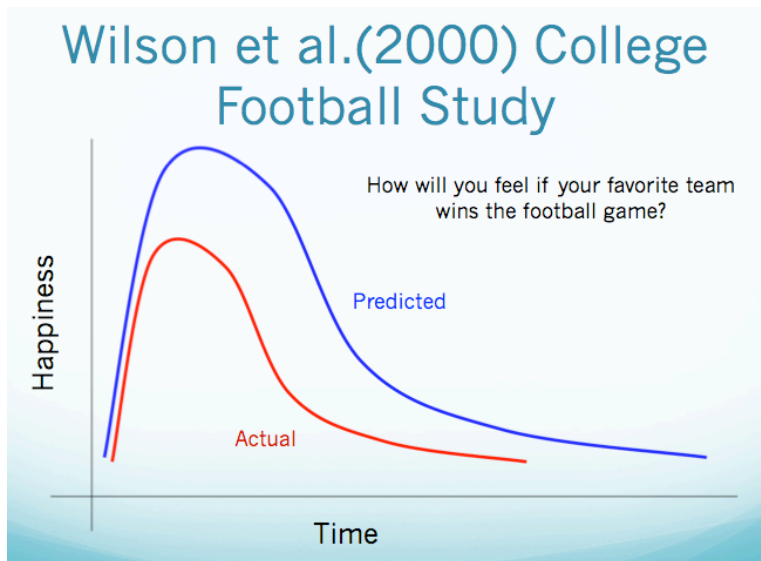
- (Individual) Affective Forecasting
  - Predicting one's emotional state in the future
  - Cognitive biases
- (Interpersonal) "Empathic" Forecasting
  - Predicting one's and one's friend's emotional state in the future
  - Cognitive biases

### Emotion prediction components

Valence	Intensity
Specific Emotion	Duration

- Impact bias: the tendency to overestimate the power and persistence of emotional reactions to events
- Sources:
  - Immune neglect
  - Focalism
  - Other: misconstruals, inaccurate theories, motivated distortions, and undercorrections

### Previous work



## **Appendix F: Questionnaire for Study 3**

### Time 1 (T1) questionnaire

You will now be asked to complete several questions about your emotions and the emotions of your friend (study partner). When answering questions using rating scales, select the option that best corresponds to your answers.

The next questions were rated on a 1-7 scale with the following endpoints:

How happy are you feeling at this moment?

Not at all happy (1) Extremely happy (7)

How unhappy are you feeling at this moment?

Not at all unhappy (1) Extremely unhappy (7)

How calm are you feeling at this moment?

Not at all calm (1) Extremely calm (7)

How anxious are you feeling at this moment?

Not at all anxious (1) Extremely anxious (7)

If your mark is as high or higher than the mark you expected, how happy do YOU expect to feel?

Not at all happy (1) Extremely happy (7)

If your mark is as high or higher than the mark you expected, how happy do YOU expect to feel 1 week after?

Not at all happy (1) Extremely happy (7)

If your mark is as high or higher than the mark you expected, how happy do YOU expect to feel 2 weeks after?

Not at all happy (1) Extremely happy (7)

If your mark is lower than the mark you expected, how unhappy do YOU expect to feel?

Not at all unhappy (1) Extremely unhappy (7)

If your mark is lower than the mark you expected, how unhappy do YOU expect to feel 1 week after?

Not at all unhappy (1) Extremely unhappy (7)

If your mark is lower than the mark you expected, how unhappy do YOU expect to feel 2 weeks after?

Not at all unhappy (1) Extremely unhappy (7)

If your friend's mark is as high or higher than the mark they expected, how happy do you expect YOUR FRIEND to feel?

Not at all happy (1) Extremely happy (7)

If your friend's mark is as high or higher than the mark they expected, how happy do you expect YOUR FRIEND to feel 1 week after?

Not at all happy (1) Extremely happy (7)

If your friend's mark is as high or higher than the mark they expected, how happy do you expect YOUR FRIEND to feel 2 week after?

Not at all happy (1) Extremely happy (7)

If your friend's mark is lower than the mark they expected, how unhappy do you expect YOUR FRIEND to feel?

Not at all unhappy (1) Extremely unhappy (7)

If your friend's mark is lower than the mark they expected, how unhappy do you expect YOUR FRIEND to feel 1 week after?

Not at all unhappy (1) Extremely unhappy (7)

If your friend's mark is lower than the mark they expected, how unhappy do you expect YOUR FRIEND to feel 2 weeks after?

Not at all unhappy (1) Extremely unhappy (7)

Participants were then asked demographic items similar to Study 1.

## Appendix G: Questionnaire for Study 4

### Prediction questionnaire

Please select and write the name of a friend you would like to report about. This can be anyone you know well, and should be a friend of the same gender.

Please think about a specific NEGATIVE event that you are likely to experience within the next two weeks. Examples of negative events are: difficult work tasks and tight deadlines, unwanted obligations, having to deal with people you dislike, etc. Please note that the event you select should \*not\* be one that also directly involves the friend you previously mentioned.

What is the event you've selected to report about?

Think about the NEGATIVE event you selected. Describe what will happen during the event for you.

When will it occur? (dd/mo/yy)

Who will be present?

What do you expect will happen during the event?

Please answer the following questions trying to be as accurate as possible, avoiding any bias.

The next questions were rated on a 1-7 scale with the following endpoints:

How negative do YOU expect to feel during this NEGATIVE event?

Not at all negative (1) Extremely negative (7)

How anxious do YOU expect to feel during this NEGATIVE event?

Not at all anxious (1) Extremely anxious (7)

How long do you expect YOUR negative feelings to last?

Not at all long (1) Extremely long (7)

Please explain why YOU expect to react to this NEGATIVE event as you have indicated:

Please think about a specific NEGATIVE event that your friend is likely to experience within the next two weeks. Examples of negative events are: difficult work tasks and tight deadlines, unwanted obligations, having to deal with people they dislike, etc. Please note that the event you select should \*not\* be one that also directly involves you.

What is the event you've selected to report about for your friend?

Think again about the NEGATIVE event you selected. Describe what will happen during the event for your friend.

When will it occur? (dd/mo/yy)

Who will be present?

What do you expect will happen during the event?

Please answer the following questions trying to be as accurate as possible, avoiding any bias.

How negative do you expect your FRIEND to feel during this NEGATIVE event?

Not at all negative (1) Extremely negative (7)

How anxious do you expect your FRIEND to feel during this NEGATIVE event?

Not at all anxious (1) Extremely anxious (7)

How long do you expect YOUR FRIEND's negative feelings to last?

Not at all long (1) Extremely long (7)

Please explain why you expect your FRIEND to react to this NEGATIVE event as you have indicated:

Post-study question on vignette

Specific Example Condition: According to the paragraph you read earlier, Katie mispredicted her reaction to lower marks because

- she was too focused on them and could not foresee a way to rationalize about them
- the test turned out to be much harder than she thought
- the other students had a strong influence on how she perceived she did by comparison

General Example Condition: According to the paragraph you read earlier, participants mispredicted their reaction to lower marks because

- they were too focused on them and could not foresee a way to rationalize about them
- the test turned out to be much harder than they thought
- the other students had a strong influence on how they perceived they did by comparison

Control Example Condition: According to the paragraph you read earlier, memory is

- the ability to encode, store, and recall information and experiences
- somewhat unstable and can be influenced by misinformation
- a field of study in bridging cognitive psychology and neuroscience

All participants completed the Implicit Theories of Emotion Scale (ITES; Tamir et al., 2007) and demographic items similar to Study 1.

## **Appendix H: Vignettes for Study 4**

Please read the following carefully. You will be asked questions about it after the questionnaire.

### Specific Example Condition

In our previous study, we assessed Oxford students' accuracy when predicting their future emotional states. When one of the students, Katie, was asked how she would feel if she received lower than expected marks on an exam, she predicted that her unhappiness would be stronger than it actually was when her emotions were assessed after receiving her results, and to last for longer than it actually did. This prediction error may be a result of being overly focused on the event itself. For instance, when making her prediction, she reported that her marks were all that mattered to her and failed to factor in other events happening around the time she received her results. Another reason for her inaccuracy is that Katie did not think about how she might cope with the bad news of getting a lower than expected mark, and in fact she was better at dealing with it than she had previously realised.

### General Example Condition

Research has shown that people are often inaccurate when predicting their future emotional states. When participants were asked to predict how they would feel if they received lower than expected marks on an exam, they rated that their unhappiness would be stronger than it actually was when their emotions were assessed after they received

their results, and to last for longer than it actually did. These prediction errors may be a result of “focalism,” being overly focused on the event itself. When making their predictions, participants reported that their marks were all that mattered to them and failed to factor in other events happening around the same time as they received their results. Another reason for their inaccuracy is “immune neglect,” participants did not think about how they might cope with the bad news of getting a lower than expected mark, and in fact they were better at dealing with it than they had previously realised.

### Control Example Condition

Research has shown that people are often inaccurate when remembering past occurrences. Our memories do not operate like a video playback but depend on active processes of reconstruction. A classic study by Loftus and Palmer (1974) highlights the instability of memory. Participants watched a film of a traffic accident and were then asked questions about what they saw. The researchers found that the phrasing of the question changed the response given by the participants. Those who were asked about what happened when the cars “smashed into” each other rather than “hit” each other estimated the cars’ speed as faster and were more likely to say that they had seen broken glass even though there had been none in the film. These findings are highly replicable and researchers generally refer to misleading information and subsequent misremembering as the “misinformation effect.”

## Appendix I: Means and Results for Study 4

### *Means and Standard Deviations of Dependent Variables for Self and Friend*

Knowledge	Self			Friend		
	Specific	General	No	Specific	General	No
Negative Feelings	4.63 (1.38)	4.61 (1.38)	4.53 (1.31)	5.03 (1.27)	4.48 (1.39)	4.63 (1.38)
Anxious Feelings	4.80 (1.27)	4.52 (1.50)	4.63 (1.54)	5.23 (1.25)	4.52 (1.55)	4.63 (1.79)
Negative Feelings Duration	3.33 (1.47)	3.35 (1.62)	3.60 (2.11)	3.90 (1.35)	3.55 (1.71)	3.63 (1.35)

*Note.* Standard Deviations appear in parentheses below means.

### *Prediction Target x Knowledge Source ANOVA for Predictions of Negative Feelings*

Source	<i>Df</i>	<i>F</i>	$\eta^2$	<i>p</i>
(A) Prediction Target	1	.65	.01	.424
(B) Knowledge Source	2	.57	.01	.569
A x B (interaction)	2	1.00	.02	.374
Error (within groups)	88			

### *Prediction Target x Knowledge Source ANOVA for Predictions of Anxious Feelings*

Source	<i>Df</i>	<i>F</i>	$\eta^2$	<i>p</i>
(A) Prediction Target	1	.53	.01	.467
(B) Knowledge Source	2	1.54	.03	.219
A x B (interaction)	2	.53	.01	.590
Error (within groups)	88			

*Prediction Target x Knowledge Source ANOVA for Predictions of Negative Feelings Duration*

Source	<i>Df</i>	<i>F</i>	$\eta^2$	<i>p</i>
(A) Prediction Target	1	1.37	.02	.245
(B) Knowledge Source	2	.19	.00	.828
A x B (interaction)	2	.48	.01	.618
Error (within groups)	88			

## **Appendix J: Questionnaire for Study 5**

### Prediction questionnaire

Those in the self-reporting condition received the following questionnaire:

Please think about a specific NEGATIVE event that you are likely to experience within the next two weeks. Examples of negative events are: difficult work tasks and tight deadlines, unwanted obligations, having to deal with people you dislike, etc.

What is the event you've selected to report about?

Think about the NEGATIVE event you selected. Describe what will happen during the event for you.

When will it occur? (dd/mo/yy)

Who will be present?

What do you expect will happen during the event?

Please answer the following questions trying to be as accurate as possible.

The next questions were rated on a 1-7 scale with the following endpoints:

How negative do you expect to feel during this NEGATIVE event?

Not at all negative (1) Extremely negative (7)

How anxious do you expect to feel during this NEGATIVE event?

Not at all anxious (1) Extremely anxious (7)

How long do you expect your negative feelings to last?

Not at all long (1) Extremely long (7)

Please explain why you expect to react to this NEGATIVE event as you have indicated:

How clearly could you imagine this negative event?

Not at all clearly (1) Extremely clearly (7)

How negatively do you usually react to negative events?

Not at all negatively (1) Extremely negatively (7)

How quickly do you usually recover from negative emotions?

Not at all quickly (1) Extremely quickly (7)

To what extent did your estimates of your emotional reactions to this negative event take into account the other events you expected to be happening at the time?  
Not taken into account at all (1) Taken into account a very great deal (7)

To what extent do you think your emotional reactions are similar to the average person's for negative events?  
Not at all similar (1) Extremely similar (7)

How familiar are you with this negative event?  
Not at all familiar (1) Extremely familiar (7)

Participants then completed the Implicit Theories of Emotion Scale (ITES; Tamir et al., 2007) and demographic items similar to Study 1.

Those in the friend-reporting condition completed the same questionnaire with the following changes:

Please select and write the name of a friend you would like to report about. This can be anyone you know well, and should be a friend of the same gender.

Please think about a specific NEGATIVE event that your friend is likely to experience within the next two weeks. Examples of negative events are: difficult work tasks and tight deadlines, unwanted obligations, having to deal with people they dislike, etc. Please note that the event you select should \*not\* be one that also directly involves you.

What is the event you've selected to report about for your friend?

Think again about the NEGATIVE event you selected. Describe what will happen during the event for your friend.

When will it occur? (dd/mo/yy)

Who will be present?

What do you expect will happen during the event?

Please answer the following questions trying to be as accurate as possible.

The next questions were rated on a 1-7 scale with the following endpoints:

How negative do you expect your friend to feel during this NEGATIVE event?  
Not at all negative (1) Extremely negative (7)

How anxious do you expect your friend to feel during this NEGATIVE event?  
Not at all anxious (1) Extremely anxious (7)

How long do you expect your friend's negative feelings to last?  
Not at all long (1) Extremely long (7)

Please explain why you expect your friend to react to this NEGATIVE event as you have indicated:

How clearly could you imagine your friend's negative event?  
Not at all clearly (1) Extremely clearly (7)

How negatively does your friend usually react to negative events?  
Not at all negatively (1) Extremely negatively (7)

How quickly does your friend usually recover from negative emotions?  
Not at all quickly (1) Extremely quickly (7)

To what extent did your estimates of your friend's emotional reactions to this negative event take into account the other events you expected to be happening in your friend's life at the time?  
Not taken into account at all (1) Taken into account a very great deal (7)

How familiar are you with your friend's negative event?  
Not at all familiar (1) Extremely familiar (7)

## Appendix K: Means and Results for Study 5

### *Means of Dependent Variables for Self and Friend*

	Prediction Target		<i>t</i>	<i>df</i>
	Self	Friend		
Predicted Negative Feelings	4.70 (0.92)	4.81 (1.21)	-0.33	39
Predicted Anxious Feelings	5.15 (1.23)	5.10 (1.61)	0.12	39
Estimated Durations of Negative Feelings	3.35 (1.09)	3.14 (1.49)	0.51	39
Event Clarity	5.40 (1.23)	5.00 (1.30)	1.01	39
Typical Emotional Reactions	4.20 (1.44)	4.24 (1.67)	-0.08	39
Emotional Coping	5.10 (1.41)	4.48 (1.50)	1.37	39
Focalism	3.65 (2.01)	4.38 (1.66)	-1.27	39
Event Familiarity	5.50 (1.64)	5.52 (1.29)	-0.05	39

*Note.* \* =  $p < 0.05$ . \*\* =  $p < 0.01$ . Standard Deviations appear in parentheses below means.

## Appendix L: Questionnaire for Study 6

### Forecasting questionnaire

Those in the nonfocal condition received the following questionnaire:

You will now be asked to complete several questions about your emotions and the emotions of your selected friend (study partner). When answering questions using rating scales, select the option that best corresponds to your answers. When answering questions about duration, estimate as precisely as possible. Some questions also require you to type in information. Please do not leave anything blank.

The next questions were rated on a 1-7 scale with the following endpoints:

How positive are you feeling at this moment?  
Not at all positive (1) Extremely positive (7)

How negative are you feeling at this moment?  
Not at all negative (1) Extremely negative (7)

How calm are you feeling at this moment?  
Not at all calm (1) Extremely calm (7)

How anxious are you feeling at this moment?  
Not at all anxious (1) Extremely anxious (7)

Think about a POSITIVE event YOU are expecting to experience within the next two weeks. Examples of appropriate positive events are social events (e.g. balls, parties, dances), going out to a movie or out to dinner, or finishing an assignment or essay. Describe the positive event in the context of that day/week:

When will it occur? (dd/mo/yy)

Who will be present?

What do you expect will happen BEFORE or AFTER the event?

How positive do YOU expect to feel during this POSITIVE event?  
Not at all positive (1) Extremely positive (7)

How negative do YOU expect to feel during this POSITIVE event?  
Not at all negative (1) Extremely negative (7)

How calm do YOU expect to feel during this POSITIVE event?  
Not at all calm (1) Extremely calm (7)

How anxious do YOU expect to feel during this POSITIVE event?  
Not at all anxious (1) Extremely anxious (7)

Please explain why YOU expect to react to this POSITIVE event as you have indicated:

How clearly could you imagine this positive event?  
Not at all clearly (1) Extremely clearly (7)

To what extent did your estimates of the intensity and duration of your emotional reactions to this positive event take into account the other events and activities you expected to be happening at the time?  
Not at all taken into account (1) Completely taken into account (7)

Think about a NEGATIVE event YOU are likely to experience within the next two weeks. Examples of appropriate negative events are difficult work tasks and tight deadlines, unwanted obligations, or having to deal with people you dislike. Describe the negative event in the context of that day/week:

When will it occur? (dd/mo/yy)

Who will be present?

What do you expect will happen BEFORE or AFTER the event?

How positive do YOU expect to feel during this NEGATIVE event?  
Not at all positive (1) Extremely positive (7)

How negative do YOU expect to feel during this NEGATIVE event?  
Not at all negative (1) Extremely negative (7)

How calm do YOU expect to feel during this NEGATIVE event?  
Not at all calm (1) Extremely calm (7)

How anxious do YOU expect to feel during this NEGATIVE event?  
Not at all anxious (1) Extremely anxious (7)

Please explain why YOU expect to react to this NEGATIVE event as you have indicated:

How clearly could you imagine this negative event?  
Not at all clearly (1) Extremely clearly (7)

How quickly do you usually recover from negative emotions?  
Not at all quickly (1) Extremely quickly (7)

To what extent did your estimates of the intensity and duration of your emotional reactions to this negative event take into account the other events and activities you expected to be happening at the time?

Not taken into account at all (1) Taken into account a very great deal (7)

Please answer the following questions about your FRIEND (STUDY PARTNER). Think about a POSITIVE event your FRIEND is expecting to experience within the next two weeks. Examples of appropriate positive events are social events (e.g. balls, parties, dances), going out to a movie or out to dinner, or finishing an assignment or essay. Describe the positive event in the context of that day/week:

When will it occur? (dd/mo/yy)

Who will be present?

What do you expect will happen BEFORE or AFTER the event?

How positive do you expect your FRIEND to feel during this POSITIVE event?

Not at all positive (1) Extremely positive (7)

How negative do you expect your FRIEND to feel during this POSITIVE event?

Not at all negative (1) Extremely negative (7)

How calm do you expect your FRIEND to feel during this POSITIVE event?

Not at all calm (1) Extremely calm (7)

How anxious do you expect your FRIEND to feel during this POSITIVE event?

Not at all anxious (1) Extremely anxious (7)

Please explain why you expect your FRIEND to react to this POSITIVE event as you have indicated:

How clearly could you imagine your friend's positive event?

Not at all clearly (1) Extremely clearly (7)

To what extent did your estimates of the intensity and duration of your friend's emotional reactions to this positive event take into account the other events and activities you expected to be happening in your friend's life at the time?

Not taken into account at all (1) Taken into account a very great deal (7)

Think about a NEGATIVE event your FRIEND is likely to experience within the next two weeks. Examples of appropriate negative events are difficult work tasks and tight deadlines, unwanted obligations, or having to deal with people you dislike. Describe the negative event in the context of that day/week:

When will it occur? (dd/mo/yy)

Who will be present?

What do you expect will happen BEFORE or AFTER the event?

How positive do you expect your FRIEND to feel during this NEGATIVE event?

Not at all positive (1) Extremely positive (7)

How negative do you expect your FRIEND to feel during this NEGATIVE event?

Not at all negative (1) Extremely negative (7)

How calm do you expect your FRIEND to feel during this NEGATIVE event?

Not at all calm (1) Extremely calm (7)

How anxious do you expect your FRIEND to feel during this NEGATIVE event?

Not at all anxious (1) Extremely anxious (7)

Please explain why you expect your FRIEND to react to this NEGATIVE event as you have indicated:

How clearly could you imagine your friend's negative event?

Not at all clearly (1) Extremely clearly (7)

How quickly does your FRIEND usually recover from negative emotions?

Not at all quickly (1) Extremely quickly (7)

To what extent did your estimates of the intensity and duration of your friend's emotional reactions to this negative event take into account the other events and activities you expected to be happening in your friend's life at the time?

Not taken into account at all (1) Taken into account a very great deal (7)

Participants then completed the Modified Implicit Theories of Emotion Scale (ITES; Tamir et al., 2007) and demographic items similar to Study 1.

### **Focal condition**

Those in the focal condition received the same questionnaire with the following change:

Describe the positive event and what will happen during the event:

When will it occur? (dd/mo/yy)

Who will be present?

What do you expect will happen DURING the event?

Reported experience questionnaire

Those in the nonfocal condition received the following questionnaire:

Following participants' positive events:

You have just experienced the POSITIVE event. You will now be asked to complete several questions about your emotions. When answering questions using rating scales, select the option that best corresponds to your answer. When answering questions about duration, estimate as precisely as possible. Some questions also require you to type in information. Please do not leave anything blank.

How positive are you feeling at this moment?

Not at all positive (1) Extremely positive (7)

How negative are you feeling at this moment?

Not at all negative (1) Extremely negative (7)

How calm are you feeling at this moment?

Not at all calm (1) Extremely calm (7)

How anxious are you feeling at this moment?

Not at all anxious (1) Extremely anxious (7)

Think about the POSITIVE event YOU experienced. Describe the positive event in the context of the day/week:

When did it occur? (dd/mo/yy)

Who was present?

What happened BEFORE or AFTER the event?

How positive did YOU feel during this POSITIVE event?

Not at all positive (1) Extremely positive (7)

How negative did YOU feel during this POSITIVE event?

Not at all negative (1) Extremely negative (7)

How calm did YOU feel during this POSITIVE event?

Not at all calm (1) Extremely calm (7)

How anxious did YOU feel during this POSITIVE event?

Not at all anxious (1) Extremely anxious (7)

Please explain why YOU reacted to this POSITIVE event as you have indicated:

How clearly could you imagine this positive event?  
Not at all clearly (1) Extremely clearly (7)

To what extent did your estimates of the intensity and duration of your emotional reactions to this positive event take into account the other events and activities you expected to be happening at the time?  
Not at all taken into account (1) Completely taken into account (7)

Following participants' negative events:

Nonfocal condition

You have just experienced the NEGATIVE event. You will now be asked to complete several questions about your emotions. When answering questions using rating scales, select the option that best corresponds to your answer. When answering questions about duration, estimate as precisely as possible. Some questions also require you to type in information. Please do not leave anything blank.

How positive are you feeling at this moment?  
Not at all positive (1) Extremely positive (7)

How negative are you feeling at this moment?  
Not at all negative (1) Extremely negative (7)

How calm are you feeling at this moment?  
Not at all calm (1) Extremely calm (7)

How anxious are you feeling at this moment?  
Not at all anxious (1) Extremely anxious (7)

Think about the NEGATIVE event YOU experienced. Describe the negative event in the context of the day/week:

When did it occur? (dd/mo/yy)

Who was present?

What happened BEFORE or AFTER the event?

How positive did YOU feel during this NEGATIVE event?  
Not at all positive (1) Extremely positive (7)

How negative did YOU feel during this NEGATIVE event?  
Not at all negative (1) Extremely negative (7)

How calm did YOU feel during this NEGATIVE event?

Not at all calm (1) Extremely calm (7)

How anxious did YOU feel during this NEGATIVE event?

Not at all anxious (1) Extremely anxious (7)

Please explain why YOU reacted to this NEGATIVE event as you have indicated:

How clearly could you imagine this negative event?

Not at all clearly (1) Extremely clearly (7)

To what extent did your estimates of the intensity and duration of your emotional reactions to this negative event take into account the other events and activities you expected to be happening at the time?

Not taken into account at all (1) Taken into account a very great deal (7)

### **Focal condition**

The focal condition received the same questionnaires with the following changes.

Think about the POSITIVE event YOU experienced. Describe the positive event and what happened during the event:

When did it occur? (dd/mo/yy)

Who was present?

What happened DURING the event?

Think about the NEGATIVE event YOU experienced. Describe the negative event and what happened during the event:

When did it occur? (dd/mo/yy)

Who was present?

What happened DURING the event?