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When sad is better than happy: Negative affect can improve the quality and effectiveness of persuasive messages and social influence strategies ☆

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Abstract

Based on recent affect-cognition theories and research on social influence strategies, four experiments predicted and found that people in negative mood produced higher quality and more effective interpersonal persuasive messages than did people in positive mood. This effect was obtained for messages advocating both popular and unpopular positions (Experiments 1 and 2), and arguments produced in negative mood actually induced greater attitude change in naïve recipients (Experiment 3). Experiment 4 replicated these effects in an interactive situation, and mediational analyses showed that mood influenced processing style, resulting in the production of more concrete and thus more effective messages when in a negative mood. The role of negative affect in information processing and the production of interpersonal influence strategies in particular is discussed, and the implications of these findings for everyday interaction strategies, and for contemporary affect—cognition theorizing are considered.

Keywords: Mood; Interpersonal communication; Persuasive messages

Introduction

What is the role of affect in the way people use language to influence others? In particular, are happy or sad persons better at producing persuasive arguments? Language is the primary medium of interpersonal communication and social influence strategies, and the ability to use language effectively is a common and challenging task in everyday social life. Although affect obviously plays an important role in many aspects of interpersonal behavior (Berkowitz, 2000; Fiedler, 2001; Fletcher, 2002; Forgas, 1994, 2002; Sinclair & Mark, 1992), the influence of moods on the production of social influence strategies received almost no attention in the past. Based on recent affect-cognition theories and past research on interpersonal communication, this paper will explore the possibility that low-intensity negative moods may have a beneficial influence on the quality and effectiveness of persuasive messages, due to the more concrete and externally focused information processing strategies they promote (Bless, 2001; Fiedler, 2001; Forgas, 1995, 2002).

Affect and persuasion

Social living is only possible because human beings possess an elaborate cognitive capacity to interpret social situations, and produce appropriate interpersonal strategies (Heider, 1958; Mead, 1934). Modern industrial mass societies in particular, where interacting with strangers has become the norm, place great demands on us to coordinate our behaviors and achieve our interpersonal objectives. The study of social influence processes has long been one of the core areas of research in social psychology, and a

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disproportionate number of our 'classic' studies deal with social influence phenomena (Forgas & Williams, 2001). It is all the more surprising, then, that relatively few attempts have been made to explore the role that affective states play in the way social influence strategies are *produced* and used. Whether one considers research on conformity, obedience, social facilitation or attitude change, the role of affect in these social influence phenomena received only limited attention (Eagly & Chaiken, 1993; Forgas & Williams, 2001).

One of the most ubiquitous influence strategies in everyday life is verbal persuasion. To get what we want from others, we typically rely on the medium of language to present as convincing a case as possible for a proposed view or action. Language represents a universal and highly flexible medium of social interaction (Mead, 1934), allowing almost unlimited scope for producing an almost infinite variety of more or less effective persuasive strategies.

Of course, there has been extensive and long-standing interest in how persuasive messages are processed by *recipients* (e.g. Berkowitz, 2000; Bless, Mackie, & Schwarz, 1996; Eagly & Chaiken, 1993; Fabrigar & Petty, 1999; Petty, DeSteno, & Rucker, 2001; Petty, Wegener, & Fabrigar, 1997; Razran, 1940; Sinclair, Mark, & Clore, 1994). The complementary question of how affect influences the way persuasive messages are actually *produced* attracted far less attention (but see Bohner & Schwarz, 1993). Yet, in everyday life we are all practicing persuaders, and we must rely on verbal communication to get our way with others. Amateur persuaders—and that means all of us—must plan and produce their persuasive strategies instantaneously, and be sensitive to the immediate feedback they receive from their interlocutors. This paper will investigate the possibility that affective states may significantly influence the persuasive strategies of *senders*, and the quality and effectiveness of the verbal messages they produce.

Generating effective persuasive messages requires sophisticated and elaborate cognitive processes (Heider, 1958). Interestingly, recent evidence suggests that it is precisely the complexity and indeterminacy of many social encounters that increases the likelihood that affect will influence responses (Forgas, 2002). The principle appears to be that the more complex and ambiguous an interpersonal situation, the more likely that interactors will need to engage in open, and constructive thinking. Paradoxically, it is such more elaborate and constructive processing strategies that are most likely to be influenced by affective states, according to strong recent evidence (Fiedler, 2001; Forgas, 1995, 2002). For example, several recent experiments found that mood states significantly influence the way people produce, and respond to verbal requests. Further, these effects are greater when more elaborate processing is required to deal with more complex and demanding social situations (Forgas, 1999, 2002). As successful persuasion also requires highly elaborate cognitive strategies, affect may have a significant influence on such communications.

The lack of research on affective influences on the production of persuasive messages is particularly surprising considering that affect has long been considered one of the primary forces driving interpersonal behavior (Fletcher, 2002; Zajonc, 1980). Several lines of evidence seem to support such a view. Affect is implicated in how people deal with relationship conflicts, how they respond to persuasion, the way they categorize social stimuli, and the way they evaluate others (Clore, Gasper, & Garvin, 2001; Fiedler, 2001; Fabrigar & Petty, 1999; Fletcher, 2002; Forgas, 1994, 2002; Niedenthal & Halberstadt, 2000; Petty et al., 1997, 2001; Sinclair & Mark, 1992, 1995). Despite some early evidence for affective influences on interpersonal behaviors, the theoretical explanation of these effects remained unsatisfactory until recently. It was only with the emergence of information processing theories in recent years that we gained a better understanding of the psychological mechanisms that link affect to cognition and the production of interpersonal behavior (Fiedler, 2001; Forgas, 2002).

Contemporary explanations linking affect and interpersonal behavior

There are several cognitive mechanisms that can explain affective influences on interpersonal behavior. By selectively priming access to mood-congruent constructs in memory (Bower, 1981), affective states can exert a powerful *informational* influence on the kind of information people selectively access and use when constructing a response in a social situation (Berkowitz, Jaffee, Jo, & Troccoli, 2000; Bower & Forgas, 2001; Eich & Macauley, 2000; Fiedler, 2001; Forgas, 1995, 2002). Thus happy persons may recall and use more positive information, and those in a negative mood access more negative information in their verbal messages, a prediction that will be investigated here. In addition, mood states can also serve as heuristic cues influencing some global evaluative responses in a mood-congruent direction (Bless et al., 1996; Clore et al., 2001; Martin & Clore, 2001; Schwarz, 1990).

Of greater relevance for our purposes is that in addition to such *informational* effects, moods can also exert a significant *processing* effect on *how* people deal with social information. Several experiments suggested that positive moods may simply lead to less effortful and systematic processing, while negative moods promote a more careful, vigilant and systematic processing style (Clark & Isen, 1982; Schwarz, 1990; Sinclair & Mark, 1992, 1995; Soldat & Sinclair, 2001). These mood-induced differences in thinking style were initially explained either in *functional* terms (bad mood signals the need for more systematic processing; Schwarz, 1990), *motivational* or *hedonistic* terms (happy people preserve their good mood by avoiding cognitive effort; Clark & Isen, 1982; Wegener & Petty, 1994), or in terms of mood-induced impairments in *processing capacity* effects (Ellis & Ashbrook, 1988; Stroessner & Mackie, 1992). It was soon recognized however that mood does not simply influence processing effort or processing capacity, as performance on

secondary tasks remains unimpaired in positive mood (Bless, 2001).

A more comprehensive explanation of mood effects on information processing was developed by Fiedler and Bless (2001; Fiedler, 2001; Bless, 2001), who suggest that mood does not simply influence processing effort, but that different moods actually induce qualitatively different *styles* of processing that are adaptive in different kinds of situations. Negative moods call for *accommodative* processing, focused on concrete, external information. In contrast, positive moods promote *assimilative* processing where individuals rely more on abstract knowledge structures and heuristics (Bless & Fiedler, 2006; Bless, 2001; Fiedler, 2001). Accommodative processing should be best suited for dealing with novel, difficult or problematic situations, often associated with negative affect, when focusing on concrete information is most helpful. Assimilative processing in turn is more appropriate in safe, familiar situations marked by positive mood, when reliance on, and the creative use of abstract, established knowledge structures is most appropriate (Bless, 2001; Bless & Fiedler, 2006; Fiedler, 2001.). Recent integrative affect-cognition theories such as the Affect Infusion Model (AIM; Forgas, 1995, 2002) also imply such a processing asymmetry. Consistent with this idea, several experiments found that people experiencing negative affect process information in a more detailed and systematic manner (Sinclair, 1988), and are more accommodating and attentive to concrete external information (Forgas, 2002). For example, people in a negative mood are less likely to commit the fundamental attribution error (FAE) (Forgas, 1998), and are less influenced by distracting false information in their eyewitness memories (Forgas, Vargas, & Laham, 2005). In contrast, positive mood seems to trigger a more abstract, assimilative processing style (Fiedler, Asbeck, & Nickel, 1991).

Extrapolating from this work, we may expect that when producing persuasive arguments, people in a negative mood should also pay more attention to, and process preferentially concrete situational details and as a result should produce higher quality and more concrete and effective persuasive messages. Persuasive arguments that are rich in concrete detail and contain more specific, factual information should in turn be more effective than are more abstract and less specific arguments. This prediction is supported by extensive theorizing about rhetorical effectiveness going back to Aristotle (Cooper, 1932), as well as psychological research suggesting that "expository information that is concrete… tends to be interesting and well recalled" (Sadowski, 2001, p. 263). Research on persuasive communication also suggests that concrete arguments tend to be more effective in communicating relevant knowledge, and often indicate greater expertise and authority to an audience (Eagly & Chaiken, 1993; Hovland, Janis, & Kelley, 1953). In contrast, the more assimilative processing style associated with positive affect may lead to greater reliance on existing abstract, general knowledge structures and ultimately, produce less effective persuasive messages. Direct evidence about these predicted mood-induced differences will also be collected here. Mediational analyses will be used to test the prediction that mood effects on information processing style and argument concreteness mediate the effects of mood on the effectiveness of persuasive messages. (Experiments 2 and 4).

The benefits of negative affect for persuasive arguments were suggested by one early experiment by Rhodewalt and Comer (1979), who found that participants who were frowning while producing counter-attitudinal persuasive messages showed more attitude change towards their advocated position than did those in the neutral, or happy (smiling) conditions. Although Rhodewalt and Comer (1979) explain this result in terms of cognitive dissonance principles, greater attitude change in negative mood is also consistent with the more concrete, accommodative information processing strategies typically promoted by negative affect (Bless & Fiedler, 2006). In another relevant experiment, Bohner and Schwarz (1993) reported that happy persons produced better persuasive arguments but only when they were arguing an unfamiliar, counter-attitudinal message. Interestingly, although these authors expected that positive moods may lead to more original and thus more effective arguments, they found "no evidence for the mediational role of originality" (p. 716), or for any other mechanism that could account for mood effects on argument quality. As this experiment collected no direct evidence about underlying processing strategies, the persuasive arguments were hypothetical and were not directed at a specific partner, and as persuasiveness was only assessed by raters, clearly more evidence is needed about the precise consequences of good and bad moods on persuasive messages. The present study will evaluate persuasiveness in terms of actual observed attitude change in naïve persons exposed to those arguments (Experiment 3), and will also collect direct evidence about the underlying processing strategies (Experiments 2 and 4). In conclusion, it is argued here that negative mood should promote a more concrete, accommodative and externally oriented processing style resulting in the production of higher quality and more effective persuasive arguments.

Aims and predictions

Thus, the aim of this paper is to explore the influence of transient mood states on the quality and effectiveness of persuasive interpersonal messages. Based on previous theories and research, it was expected that negative mood should promote a more concrete and accommodative processing style involving greater attention to concrete external information, resulting in higher quality and more effective persuasive messages. Affect should also have a mood-congruent influence on the content of persuasive arguments, consistent with the affect-priming theory and the Affect Infusion Model (Bower & Forgas, 2001; Bower, 1981; Forgas, 2002). Consistent with the accommodative/assimilative processing dichotomy, it was expected that

people in a positive mood should generate more abstract, and less concrete arguments compared with negative mood persuaders. Experiments 1 and 2 explore this prediction by analyzing the quality of arguments produced by happy and sad participants. Experiment 3 evaluates the actual effectiveness of persuasive arguments written in positive or negative moods in producing attitude change in naïve recipients. Experiment 4 explores whether these mood effects also occur in a computer-mediated simulated interpersonal encounter. Mediational analyses of argument characteristics such as concreteness/abstractness and processing latencies (Experiments 1, 2, and 4) will also be performed specifically to test that different information processing styles recruited by good and bad moods are indeed responsible for mood-induced differences in the quality of persuasive messages.

Experiment 1

The first experiment was designed as an initial test to explore if transient moods can indeed influence the quality of persuasive messages. We predicted that good mood should reduce, and bad mood should increase the quality of the persuasive messages produced.

Method

Overview, design and participants

After an audiovisual mood induction, participants were asked to produce persuasive arguments on two issues, student fees, and Aboriginal land rights, arguing for the popular position on one issue (for land rights, and against student fees), and the unpopular position on the other issue (against land right and for student fees). The experiment comprised a $2 \times 2 \times (2)$ mixed design, with mood (happy, sad) and issue popularity (popular, unpopular) as the between-subjects variables, and issue content (student fees, land rights) as the within subjects variable. Participants were 59 volunteer students (34 female, 25 male) who participated in the experiment for course credit.

Mood induction

Participants were induced into positive or negative mood by watching short videotapes, described as part of a separate experiment. The happy film featured a ten minute excerpt from a popular comedy series, and the sad film dealt with death from cancer. These films have been used in previous studies and were found to be highly effective inducing significantly different, positive and negative affective states (e.g. Forgas, 2002).

The persuasion task

After the mood induction, in an ostensibly unrelated experiment on 'social communication', participants were instructed that 'you are having a discussion with an acquaintance about current affairs, and your job is to try to persuade your partner of a particular point of view. Write down on the sheet provided the arguments you would use to persuade your partner, using the exact words you would use to make your point.' The two issues discussed were (1) the proposition that student fees should be increased or decreased, and (2) the issue of providing or restricting Aboriginals land rights in Australia. Each participant produced persuasive arguments on the popular position on one issue and the unpopular position on the other.

Dependent measures

Participants produced an average of 6.73 arguments ($SD = 1.22$) each. Each argument was rated by two raters blind to the experimental condition who achieved a satisfactory inter-rater reliability (see Cronbach's alphas, below). They rated each argument on 10-point scales, evaluating its overall quality ($r = .82$), its persuasiveness ($r = .77$), its level of concreteness vs. abstractness ($r = .79$), and its valence (positive–negative content; $r = .85$). Raters were initially provided with a brief definition of each construct, and were instructed to rate 'the extent to which each argument appears high or low on each variable.' They were then asked to rate a pilot sample of arguments. As part of their training, their ratings were subsequently discussed with them to ensure that they had a complete and clear understanding of the criteria to be used. As the rated quality and persuasiveness measures were found to be strongly correlated ($r = 78$), these two scales were combined to form a single measure of argument quality. There were no other significant correlations between any of the rated variables. Ratings across all arguments were averaged for each participant to create an overall measure on each dependent variable.

Debriefing and mood validation

A thorough debriefing detected no awareness of the manipulations. Care was taken to eliminate all residual mood effects. Participants also completed a 'Post-experimental questionnaire' at this stage, asking them to rate their mood state after the mood induction on a 10-point happy–sad scale, embedded among several distracter items. The manipulation check for mood effects was delayed until the end of the procedure, to avoid drawing the participants' attention to their mood, as such self-focussed attention was found to interfere with mood effects in prior studies (Berkowitz et al., 2000).

Results

Validation of the mood induction

An analysis of participants' self-rated mood confirmed that the mood induction was highly effective: those in the happy and sad conditions rated their mood as significantly different, $F(1,58) = 135.07$; $p < .01$ ($M = 2.83$ vs. 6.65).

Mood effects on argument quality

Mood had a significant influence on argument quality. Those in a negative mood produced arguments that were

judged by two trained raters blind to the experimental manipulations as of significantly higher quality and more persuasive than the arguments produced by participants in a happy mood ($F(1,58) = 11.45$; $p < .01$; $M = 6.62$ vs. 5.59). Issue popularity had no main or interactive effect on argument quality, indicating that sad mood increased the quality of arguments produced *irrespective* of the issues argued or the popularity of the position taken.

An analysis of variance of the second dependent variable, argument concreteness, showed that as predicted, those in a positive mood produced more abstract, non-specific arguments, while negative mood resulted in arguments that were rated as more concrete and specific ($M = 5.82$ vs. 4.23, $F(1,58) = 6.64$; $p < .05$). An analysis of variance of the third dependent variable, argument valence, showed a non-significant trend towards a mood-congruent effect, as happy persons produced arguments that contained somewhat more positive content than sad persons ($M = 5.63$ vs. 5.20, $F(1,58) = 1.69$, $p < .13$).

A mediational analysis was also performed to test the theoretical prediction that it was indeed mood-induced variations in argument concreteness that mediated mood effects on argument quality. To establish mediation (Baron & Kenny, 1986), three regression analyses were performed. First, the independent variable, mood, was used to predict the mediator, argument concreteness. Second, mood was used to predict the dependent variable, argument quality. Third, the independent variable and the mediator were simultaneously entered into a regression to predict the dependent variable. If there is mediation, all three regression analyses should be significant ($p < .05$), as was the case here. The first two regression analyses showed that mood significantly influenced both argument concreteness, $\beta = .288$, and argument quality, ($\beta = .401$). Consistent with the mediational hypothesis (Baron & Kenny, 1986, p. 1177), the effects of the independent variable on the dependent variable were significantly reduced in the third equation (when the mediator is also present) compared to the second equation (when the mediator is absent), ($\beta = .401$ vs. .134, $t(59) = 11.28$; $p < .01$). As mood remained a significant predictor of argument quality even when the mediating variable was included in the analyses ($p < .05$), these results confirm that argument concreteness functioned as a significant but only partial mediator of mood effects on argument quality. This analysis confirms that positive mood tended to reduce, and negative mood tended to increase the degree of concreteness, and ultimately, effectiveness of the arguments produced. This pattern is consistent with the theoretical prediction that negative moods should trigger a more concrete, detail-oriented and accommodative processing style (Fiedler & Bless, 2001; Forgas, 2002).

This experiment was thus successful as an initial demonstration of a significant mood effect on the quality, as well as the level of concreteness/abstraction of the persuasive arguments produced, a pattern that is consistent with the predicted mood-induced differences in assimilative vs. accommodative processing style. These effects were further explored in Experiment 2.

Experiment 2

Although these results are encouraging and show that negative mood improved the quality of persuasive arguments compared to positive mood, Experiment 2 sought to replicate and extend these findings using a procedure incorporating several improvements. As different mood induction methods necessarily produce additional motivational and cognitive effects that may confound the results, it is thus important to establish that a particular phenomenon can be obtained irrespective of the mood induction used. In this study, mood was induced using an autobiographical method, asking participants to think about, write down and re-experience positive or negative episodes from the past. Further, a neutral condition was also included, allowing a comparison of positive vs. negative mood effects on persuasive communication against the neutral baseline condition. The study also included additional dependent measures, assessing the creativity and originality of the arguments, and the use of self-referential material to gain better insight into argument characteristics. Finally, mediational analyses were also performed to show that it was the greater concreteness of arguments induced by negative mood that resulted in improved argument quality, as predicted by the assimilative/accommodative processing dichotomy (Bless, 2001; Fiedler, 2001).

Method

Overview, participants and mood induction

The procedure was similar to Experiment 1, but an autobiographical rather than an audiovisual mood induction method was used including a neutral mood condition. Persuasive arguments were produced for or against Australia becoming a republic, and for or against a populist right-wing political party. Participants ($N = 125$; 76 females, 49 males) underwent a mood induction that required them to recall, re-experience and write about a positive ($N = 43$), neutral ($N = 40$) or negative ($N = 42$) life experience in an ostensibly unrelated autobiographical memory task.

The persuasion task

Immediately after the mood induction, participants were again instructed that 'you are having a discussion with a friend, and find yourself disagreeing on some public issues.' They were instructed to write down as many persuasive arguments as they could advocating a particular position (for or against) on Australia becoming a republic, and attitudes towards a new right-wing party. Students argued the popular position on one issue (for the republic and against the right-wing party), and the unpopular position on the other issue in a counterbalanced design. The design of the study was thus a $3 \times 2 \times (2)$ design, with mood, issue popularity and the two topics as independent variables.

Dependent measures

Participants produced an average of 6.38 arguments ($SD = .804$). Each of the arguments produced were then rated on five characteristics using 10-point rating scales by two trained raters. The rated characteristics were 1. persuasiveness and overall argument quality, 2. valence (the positive or negative content of the arguments produced), 3. concreteness vs. abstractness, 4. self-referencing (the extent to which participants used personal, self-relevant themes), and 5. creativity (the extent to which each argument was judged as original and creative). The same procedure as described in Experiment 1 was used to instruct and train raters. They were first provided with a brief definition of each variable, and their pilot ratings of a sample of arguments were subsequently discussed with them to ensure that a complete and clear understanding of the criteria to be used was achieved. Judgments by the two raters were overall highly consistent (Cronbach's $\alpha = .82$) and were combined for the purpose of the analyses. There were no significant correlations between the rated variables.

Debriefing and mood validation

A careful debriefing revealed no awareness of the manipulations. The post-experimental questionnaire was used to validate the mood induction, asking participants to rate their mood after the mood induction on 7-point happy–sad and good–bad scales, embedded among several distracter items. The mood manipulation check was again performed at the end of the procedure, as drawing participants' attention to their mood prematurely could have interfered with the mood effects (Berkowitz et al., 2000).

Results

Validation of the mood manipulation

Judgments on the happy–sad and good–bad scales were highly correlated ($r = .87$), and were thus combined into a single affect valence measure. A univariate ANOVA showed a significant mood effect, $F(2,122) = 38.78$; $p < .01$, with happy participants feeling significantly better, $F(1,82) = 14.67$; $p < .01$, and sad participants feeling significantly worse, $F(1,81) = 21.32$; $p < .01$, than did controls ($M = 2.34$, 3.99, 5.89), confirming the effectiveness of the mood induction.

Mood effects on persuasive arguments

The averaged judgments by the two raters (Cronbach's $\alpha = .82$) were submitted to $3 \times 2 \times (2)$ ANOVAs, evaluating the effects of mood, the popularity of the position argued and the two topics on ratings of persuasiveness, concreteness, self-relevance, valence, creativity, and the number of arguments produced. Mood again had a highly significant influence on the rated *quality* of persuasive arguments, $F(2,122) = 5.01$; $p < .01$ (see also Fig. 1). Students in a negative mood produced higher quality arguments than the neutral group, $F(1,82) = 4.23$; $p < .05$, and positive mood resulted in lower quality arguments, $F(1,81) = 3.96$; $p < .05$ ($M = 5.12$, 5.64, 6.42). This finding again confirms the main prediction that induced mood can have a significant and reliable impact on the quality of persuasive messages Fig. 2.

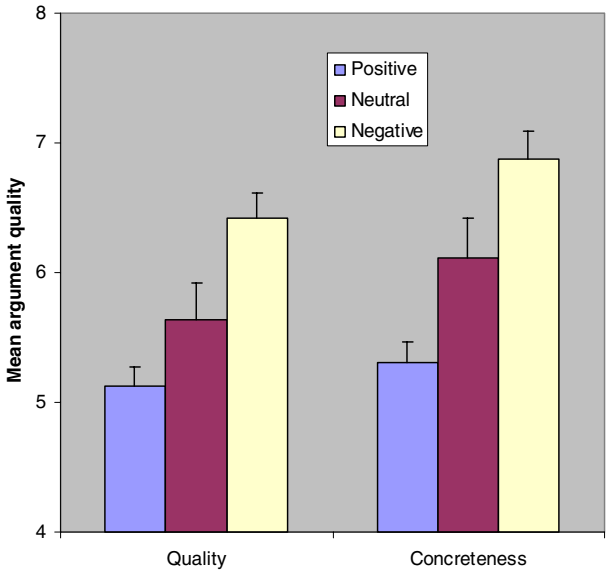

Fig. 1. Mood effects on the quality and concreteness of the persuasive messages produced: negative affect increases the degree of concreteness of the arguments produced, and arguments produced in negative mood were also rated as more persuasive (Experiment 2).

What is it about negative mood arguments that accounts for their higher quality? An analysis of argument concreteness/abstractness also revealed a significant mood effect, $F(2,122) = 3.47$; $p < .05$ (see also Fig. 1). Arguments produced in a negative mood were rated as more concrete than were arguments produced in neutral mood, $F(1,82) = 5.31$; $p < .05$, and those in a happy mood produced less concrete arguments than the neutral group, $F(1,81) = 4.49$; $p < .05$ ($M = 5.76$, 6.34, 6.88). This result is consistent with theoretical predictions (Bless, 2001; Fiedler, 2001; Forgas, 1995) that negative affect should promote a more concrete, accommodative and externally oriented processing style that is more attuned to the requirements of a particular situation, and leads to more concrete and higher quality arguments.

The link between argument concreteness and quality: Mediational analysis

Next, a mediational analysis was performed to test the prediction that argument concreteness was responsible for mood induced differences in argument quality, as suggested by the assimilative/accommodative processing model. To test the predicted pattern of mediation, three regression analyses were performed (Baron & Kenny, 1986). (1) First, the independent variable, self-rated mood, was used to predict the mediator, argument concreteness/abstractness. (2) Second, the independent variable, mood, was used to predict the dependent variable, argument quality. (3) Third, the independent variable and the mediator were simultaneously entered into a regression to predict the dependent

variable. To establish mediation, all three regressions should yield significant results ($p < .05$), as was indeed found here. The first two regression analyses showed that mood significantly predicted both the mediator, argument concreteness ($\beta = .341$), and the dependent variable, argument quality, ($\beta = .323$). If the predicted mediation occurs, the effects of the independent variable on the dependent variable must be less in the third equation (when the mediator is also present) than in the second equation (when the mediator is absent), as was found here. The third regression analysis showed that the mediator (argument concreteness) was a significant predictor of argument quality ($\beta = .291$), and the effects of mood on argument quality were significantly reduced when the mediator was also included in the analysis ($\beta = .323$ vs. .189, $t(124) = 2.44$; $p < .01$). These results confirm that argument concreteness mediated mood-induced differences in argument quality, consistent with the predicted mood effects on assimilative vs. accommodative processing.

We should note however that mediation was only partial, as mood effects on argument quality remained significant even with the mediator included in the analyses ($p < .05$), indicating that the mediator was not both a necessary and a sufficient condition for the effect to occur, as is often the case with complex, multi-determined social and behavioural phenomena (Baron & Kenny, 1986, p. 1176). This pattern is consistent with the theoretical prediction that negative moods should trigger a more concrete and accommodative processing style that is more attentive to the external situation and thus results in more effective persuasive arguments (Fiedler & Bless, 2001; Forgas, 2002).

Mood also influenced the degree of *self-relevant content* in arguments, $F(2,122) = 3.19$; $p < .05$. Happy participants used somewhat more self-relevant content in their arguments than did sad participants, although neither the happy-neutral nor the sad-neutral group differences reached significance ($M = 5.97$, 5.78, 5.44). This pattern seems consistent with affect/cognition theories that predict that positive affect should promote a more abstract, internally driven (and by implication, perhaps more self-referential) processing style (Bless, 2001; Fiedler, 2001). However, subsequent mediational analyses revealed that self-referencing was not a significant mediator of argument quality, as mood effects on argument quality were not significantly reduced when self-referencing was also included in the equation $\beta = .249$. vs. .221, $t(124) = 0.497$; NS. Mood also had no significant effect on the creativity of the arguments, as also found by Bohner and Schwarz (1993).

There was also some evidence for a significant *mood congruency* effect $F(2,122) = 4.41$; $p < .05$ ($M = 6.41$, 5.89, 5.56), as participants in a positive mood produced more positive arguments than did subjects in a negative mood. This result is consistent with a long line of studies that show that temporary moods have a significant mood-congruent influence on the valence of thoughts, memories, judgments and behaviors due to affect priming effects, as long as some degree of open and constructive processing is employed (Bower & Forgas, 2001; Forgas, 1994, 2002).

Could it be that the mood-congruency of the arguments was partly responsible for the observed differences in argument quality? Work by Soldat and Sinclair (2001) and Ottati, Terkildsen, and Hubbard (1997) suggests that people may spontaneously respond to the affective cues transmitted by a communicator (such as argument valence here). Perhaps arguments with positive content created in a positive mood may be rated as less effective and more facile, and conversely, arguments with negative content could be rated as more serious and effective? To test this possibility, a mediational analysis was conducted with argument valence included as the mediational variable. However, the effects of mood on argument quality were not significantly reduced when the mediator (valence) was also included in the analysis ($\beta = .266$ vs. .259, $t(124) = 0.82$); NS, confirming that valence was not a significant mediator of argument quality.

Finally, the *quantity* (number) of arguments produced was also influenced by mood, and happy participants produced a slightly larger number of arguments overall than did neutral or sad participants ($F(2,122) = 3.61$; $p < .05$; $M = 7.76$ vs. 6.89 vs. 6.53). This result is interesting because it seems inconsistent with some earlier suggestions that the processing benefits of negative mood are mainly due to more effort being used (Schwarz, 1990). However, care should be taken in simply equating argument numbers with processing effort. Other analyses, such as the mediational analysis linking argument concreteness to argument quality (see also Experiment 4) offer a better insight into the ways good and bad moods can influence processing style, and ultimately, persuasive argument quality (Bless, 2001; Fiedler, 2001).

In conclusion, this experiment was successful in confirming that affective states can significantly influence the quality of persuasive arguments, and that this effect is mediated by mood-induced differences in the level of concreteness of the arguments, as predicted by recent affect-cognition theories (Bless, 2001; Fiedler, 2001; Forgas, 2002). In contrast, neither the degree of self-referencing, nor argument valence played a significant mediational role in argument quality. Further, the absence of significant interactions between mood and issue popularity suggests that these mood effects were obtained irrespective of the popularity of the position argued, indicating that the psychological mechanisms responsible for these outcomes are likely to be quite robust.

However, the ultimate significance of these findings largely depends on whether the arguments produced by happy and sad participants indeed differ in actual persuasive power, as distinct from ratings of persuasiveness produced by trained raters. In other words, can we produce greater attitude change in a naïve audience with the arguments produced in negative mood, rather than positive mood? This was the objective of the next, third experiment.

Experiment 3

Experiments 1 and 2 produced persuasive arguments written by happy or sad participants, promoting the pro or the contra position on four salient attitude issues: student fees, indigenous land rights, Australia becoming a republic, and a right-wing populist party. To show that these arguments indeed differ in persuasiveness, it is important to test them in a realistic context, rather than exclusively relying on judgments by trained raters. Experiment 3 sought to evaluate the actual, real-life effectiveness of these arguments by presenting them to a naïve audience, and then evaluating their actual change in attitudes on these issues as a function of the persuasive arguments they were exposed to.

Method

Overview, design and participants

Participants were 256 undergraduate students (164 female and 92 male). Their baseline attitudes on the four issues were assessed in a screening questionnaire administered at the beginning of the term. Several weeks later they were asked to read one set of pro- or contra persuasive arguments on one of the issues written by one of the happy or sad participants in Experiments 1 and 2. Their attitude on the issues was then again assessed, and the change in attitudes against the baseline measurement was assessed as a function of the affective state of the writer of the persuasive arguments. Each participant read just one set of arguments. The overall design was thus a $2 \times 2 \times 4$ complete between subjects design, with mood, argument position (for or against), and the four attitude issues as the independent variables. There were 16 participants in each cell.

Procedure and materials

The task was introduced as an exercise concerned with social issues. They were told that people 'often hold different attitudes on different social issues. Such attitudes are formed and are sometimes influenced by various arguments and ideas we pick up by listening to others, or reading their opinions. In this exercise you will be asked to read and consider some arguments about a particular social issue written by another student.' Each participant was then given one sheet containing arguments written by a happy or a sad person in Experiments 1 and 2 arguing for either a popular or an unpopular position on one of the four attitude topics considered. As there were only sixteen participants in each condition in this experiment, and we had a larger number of participants producing arguments for each side in Experiments 1 and 2 to choose from, 16 arguments for or against each position written by happy or sad participants were randomly selected from the available pool for use here.

After reading the persuasive arguments, participants completed a post-experimental questionnaire that among other questions contained four attitude questions evaluating their attitude towards the four attitudes questions (student fees, land rights, the republic, and the One Nation party) on nine-point scales. The attitude questions were in exactly the same format as the initial baseline assessment administered at the beginning of the term. Participants were asked 'What is your attitude to each of the following issues—are you for, or against the following: 1. Increasing student fees, 2. Land rights for Aboriginals, 3. Australia becoming a republic, 4. The One Nation party. On each item, responses could be recorded on nine-point 'for' (+4) vs. 'against' (−4) rating scales.

Results

For each participant, a difference score between their attitudes as measured at the beginning of the term, and as measured now was established for each of the four attitude domains (only one of which was the subject of persuasive arguments). A discrepancy score was calculated so that positive discrepancy values represented attitude change in the direction of the persuasive arguments and negative values represented a change in the opposite direction. An overall analysis of difference scores on the four attitude domains was also carried out using only data from participants who did not receive persuasive arguments for that domain, to establish if there were any spontaneous changes in attitudes on these topics over time. We found no evidence of any systematic attitude change in any of the four attitude domains of interest here.

A $2 \times 2 \times 4$ analysis of variance of difference scores was carried out next, evaluating the effects of the mood, popular vs. unpopular arguments and the four attitude topics. Results showed a significant mood main effect, showing that arguments written by negative mood participants in Experiments 1 and 2 were significantly more successful in producing a change in attitudes than were arguments produced by happy mood participants ($F(1,254) = 7.27$; $p < .01$; $M = 1.15$ vs. .55, See also Fig. 2).

We also found a significant mood main effect on attitude change due to the popularity of the position argued, $F(1,254) = 8.99$; $p < .01$. As expected, attitudes were far more likely to change when the persuasive arguments advocated a popular position, than when they advocated an unpopular position ($M = 1.16$ vs. .54). Finally, we also found an interaction between mood, and the popularity of the position argued, $F(1,252) = 4.66$; $p < .05$. This interaction showed that negative mood arguments were especially successful in producing attitude change when the position advocated was popular rather than an unpopular one ($F(1,124) = 5.87$; $p < .05$; $M = 1.54$ vs. .78). However, even in the unpopular condition, negative mood arguments were still significantly more effective in producing attitude change than were positive mood arguments, ($F(1,126) = 3.77$; $p < .05$; $M = .76$ vs. .32).

Overall, this experiment was successful in establishing that persuasive arguments produced in negative mood were not only of higher quality as judged by raters, but were also significantly more effective in producing genuine attitude change in people. Experiment 3 thus demonstrated that

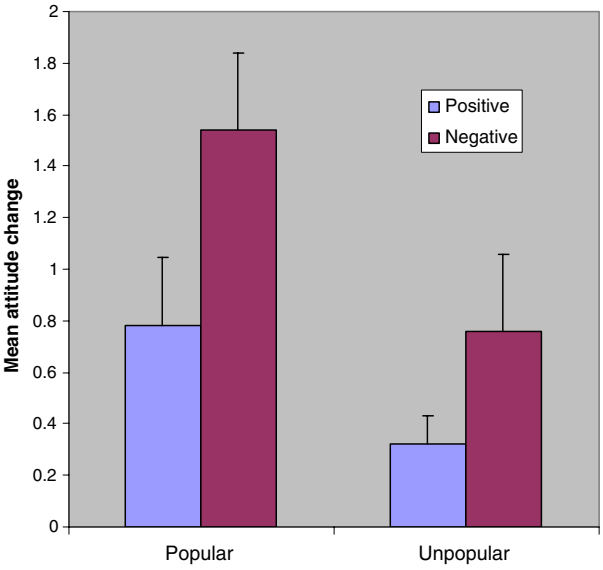

Fig. 2. Persuasive messages produced by participants in a negative mood are actually more effective in producing attitude change in readers than are messages produced by happy participants. There is also more attitude change when arguments promote popular, rather than unpopular attitudes (Experiment 3).

fluctuations in affective state can result in marked differences in a person's ability to generate and use effective social influence strategies, such as persuasive arguments. These results are also broadly consistent with other evidence suggesting that affective fluctuations do influence people's verbal communication strategies such as negotiating behaviors, and the use of requests (Forgas, 1999). These prior studies showed that negative mood produced more cautious, polite and elaborate request forms, and more defensive and competitive negotiating strategies. The present experiment demonstrates, for the first time, that negative affect may generate a more concrete, accommodative, and situationally sensitive processing style that in turn results in more successful and effective verbal persuasion strategies.

Experiment 4

Although these three experiments produced strong and consistent results, they also suffer from some shortcomings. The persuasive arguments were produced in a hypothetical situation, there was no social interaction involved, and participants received no feedback to their messages, as would be the case in a realistic encounter. Also, the motivation to produce effective persuasion strategies was not manipulated; yet a strong motivation to be effective may over-ride more subtle mood effects on the quality of persuasive arguments, as suggested by models such as the AIM, and also found in previous studies on mood effects on bargaining behaviours (Forgas, 2002). To deal with these issues, Experiment 4 used an interactive procedure, asking participants to communicate with a 'partner' and produce their persuasive messages on a computer keyboard, as if exchanging emails. In fact, there was no partner; instead, the computer was pre-programmed to 'respond' to persuasive messages in standard ways indicating agreement or disagreement with the communication. Partner agreement or disagreement was manipulated to (a) make the task more realistic by introducing an element of interactivity, and (b) to manipulate the ease or difficulty of the persuasion task, as a disagreeing partner presumably presents a more challenging target for persuasion.

The previous experiments looked at persuasion about attitude issues. To increase the personal relevance and extend the generality of these phenomena, Experiment 4 used a different, interpersonal persuasion task, where persuasive attempts were directed at persuading the 'partner' to undertake a particular course of action (volunteer for an experiment). Experiment 4 also manipulated the motivation to be persuasive, by offering some participants a significant reward (the chance to win movie passes), to discover if increased motivation may interfere with more subtle mood effects on argument quality. Finally, Experiment 4 also used a different, false feedback mood induction procedure.

Method

Overview, design and participants

Mood was induced in an ostensible test of cognitive abilities. Participants performed a series of spatial and numerical tasks, and received manipulated feedback about their good or bad performance to induce positive or negative mood (see Forgas, 1999). After the mood induction, participants engaged in a computer-mediated communication task, trying to persuade another student to participate in a boring experiment by sending persuasive emails, and receiving accepting or rejecting responses. In fact, there was no real 'partner'; rather, the computer was pre-programmed to respond as if responses were typed in by a real person. Motivation to persuade was manipulated by half the participants being offered a significant reward (movie passes) if their persuasion efforts succeed. The experiment was based on a $3 \times 2 \times 2$ between-subjects design, with mood (happy, neutral, and sad), motivation (high and low) and partner response (accepting and rejecting) as the independent variables. Participants were 128 students (75 female, 53 male) who participated in the study for course credit.

Mood induction

On arrival, allegedly as part of a separate experiment, participants were asked to complete what they believed was 'a test of spatial–numerical abilities.' They were then shown an impressive looking test folder, containing a psychological test consisting of several diagrams of various shapes with a large number of dots within each shape, and several printed pages of 'standardization information,' comprising computer printouts, charts, statistical data and tables. Participants were told that the purpose of the test was to assess people's ability to process complex spatial and numerical information effectively. They were asked to look at each of

the test pages, and then estimate (a) the surface area of the irregular diagram shown, and (b) the number of dots enclosed within each diagram. Given the complexity of the shapes, the questions could not be answered accurately, forcing participants to produce what was a vague estimate at best. During the task the experimenter would use verbal and nonverbal signs to indicate approval (in the positive mood condition), such as smiles, nods, and saying "yes, good, very close…," or disapproval (in the negative condition) by shaking head, and murmuring "oh, tsk,…." The indeterminacy of the task allowed the experimenters to subsequently provide manipulated feedback to induce good or bad moods. In the positive mood condition, participants were told that their performance indicates "excellent visual–spatial ability… good numeric, rotational and other allied cognitive skills… in the top 5% of the adult population." In the control condition they were told that the test is still under development, and were thanked for their participation. In the negative condition participants were told that their results show "poor visual–spatial ability… poor numeric, rotational and other allied cognitive skills… placing them near the bottom of the population."

Mood validation

Following the mood induction, a brief post-experimental questionnaire assessed self-reported mood to validate the effectiveness of the procedure. Among several distracter items (e.g. 'have you done similar tasks before?'), participants rated their mood valence on two seven-point bipolar scales (happy–sad, good–bad).

The persuasion task

After the mood induction, a second experimenter introduced the persuasion task as an unrelated exercise in social communication. Participants were told that the experiment is about the way people use the internet, and that they will be exchanging messages with another student seated in a neighbouring room to 'reduce interference from unwanted variables such as physical appearance.' As it didn't matter what the email exchanges were about, and as one of our colleagues badly needed a participant to complete an experiment, students were asked if they would be prepared to use their messages to try to persuade their communication partner to volunteer for another study immediately after this one. They were told that the study is a boring and repetitive reaction time experiment, but they should try to make it sound as interesting as possible to persuade their partner to volunteer. In effect, the persuasion task was conceptually similar to the forced compliance task originally used by Festinger and Carlsmith in their classic experiment on dissonance induced attitude change.

Further, half of the participants were promised a significant reward (movie passes) if they are successful in an attempt to manipulate motivation. Prior research shows that such motivational manipulations do not interfere with the effectiveness of the mood induction, as the likelihood of actually obtaining a reward remains unknown throughout the procedure (Forgas, 2002). Participants were also told that the procedure requires that their partner can only use a very limited range of standard sentences in responding to their messages, and were not allowed to write anything else. The reply messages were in fact produced by the computer, typed one letter at the time to simulate a human typist, and communicated increasingly positive, accepting or increasingly negative rejecting reactions to the subject's persuasive messages. The first 'reply' was always non-committal, and progressed to increasing acceptance or rejection of the persuasive attempts in subsequent exchanges (e.g. 'I am not sure,' 'I may be interested,' 'I somewhat agree,' 'I agree,' and 'OK, I'll do the study'). The accepting or rejecting responses by the 'partner' were included to make the task more realistic, and also as a manipulation of the difficulty of the persuasion task. The debriefing confirmed that all students accepted this rationale and had no doubts about the genuineness of the procedure, the existence of a 'partner,' or the reality of the persuasion task. The instructions also stated that in trying to get the other student to volunteer for the experiment, they should start by writing three persuasive arguments, wait for a response, and then write one argument at a time and wait for the response. In fact, each participant was allowed to produce eight arguments in total before the procedure was terminated. The eight arguments were divided into three categories: the initial three arguments, before any feedback was received, the middle two arguments, and the final three arguments.

Dependent measures

Each persuasive argument produced was rated by two trained raters blind to the manipulations on 7-point scales for quality, concreteness, originality and valence. Raters were provided with an initial definition of these three constructs, and were instructed to rate 'the extent to which each argument appears high or low on each variable.' They then rated a pilot sample of arguments. As part of their training, their ratings were next discussed with them to make sure that a consistent and clear understanding of the rating criteria has been achieved. The two raters achieved an overall inter-rater reliability of .78 (Cronbach's α), and their ratings were averaged for subsequent analyses. There were no significant correlations between the rated characteristics. The latency (time taken) to produce each argument was also recorded, as the computers were programmed to record the time taken to produce each argument.

Results

Validation of the mood manipulation

Mood self-ratings on the happy–sad and good–bad scales were highly correlated (.86) and were averaged before further analysis. An ANOVA of this measure revealed that the mood induction again had a highly significant influence on self-rated mood, $F(2,126) = 12.11$; $p < .01$,with the happy, neutral and sad groups rating their mood as significantly different in the predicted direction (it M = 2.54, 3.29, 4.70).

Mood effects on persuasive arguments

In the main analysis, we used a repeated measure General Linear Model ANOVA to examine the effect of mood, reward (low and high), partner response (positive and negative) and the within subject variable of time (early, middle, and late arguments) on the quality, concreteness, originality, and valence of the arguments generated. There was again a significant main effect of mood on argument quality, $F(2,126) = 7.73$, $p < .01$. Overall, those in a negative mood generated significantly higher quality arguments than did the neutral group, $F(1,84) = 4.33$; $p < .05$, who in turn did slightly but not significantly better than the positive group ($F(1,84) = 1.27$; $p < .11$; $M = 4.33$, 3.87, 3.59). Mood also had a significant main effect on argument concreteness, $F(2,126) = 4.65$, $p < .01$: those in a negative mood produced significantly more concrete and specific arguments than did the neutral group, $F(1,84) = 4.39$; $p < .05$, who in turn were more concrete than the positive group ($F(1, 84) = 3.88$; $p < .05$; $M = 5.41$, 4.60, 3.88). However, there were no main or interaction effects on argument originality and valence.

There were also no significant main effects due to time, $F(2,127) = 2.05$, $p > .1$, reward, $F(1,127) = .22$, $p > .1$, or partner feedback, $F(1,127) = .3$, $p > .1$. This result confirms the pattern obtained in hypothetical situations in Experiments 1 and 2, and shows that affective states indeed have a significant impact on the quality of persuasive messages produced even in a realistic interpersonal social influence task.

In a highly interesting pattern, mood effects on argument quality were further qualified by a significant interaction with the reward condition, $F(2, 126) = 3.30$, $p < .05$. Mood had a greater effect on argument quality in the low reward condition than the high reward condition (Fig. 3). It appears that in the low reward condition the negative mood group produced higher quality arguments than the neutral mood group, $F(1,84) = 4.87$; $p < .05$, who in turn produced higher quality arguments than the positive group, $F(1,84) = 4.31$; $p < .05$. Mood effects were not significantly different in the high reward condition. This finding confirms a key prediction of the Affect Infusion Model, that mood effects on information processing—and subsequent social influence strategies—are strongest in the absence of motivated processing. Negative mood improved argument quality, but only when there was no external reward. The provision of a reward eliminated mood effects on argument quality by imposing a strong external influence on how the task was approached, and thereby overriding more subtle internal mood effects.

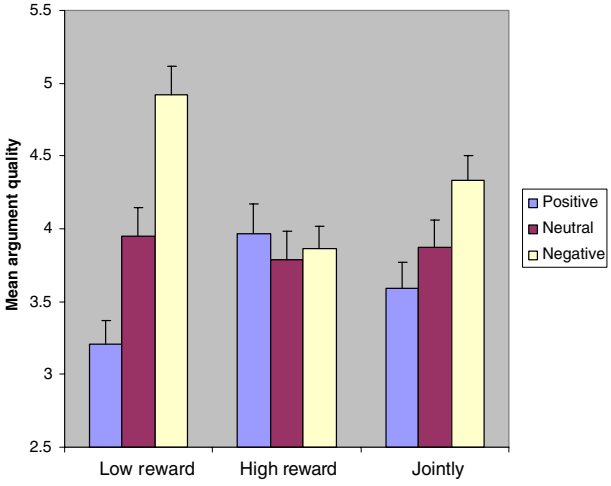

Fig. 3. Affective influences on the production of persuasive messages in a computer-mediated interaction: people in negative mood produce more persuasive and higher quality messages, but the expectation of a high reward reduces these mood effects (Experiment 4).

Evidence for qualitative processing differences: The mediational role of argument concreteness and processing style

A simultaneous mediational analysis was next performed, to test that prediction that consistent with mood induced differences in accommodative and assimilative processing, it was indeed changes in argument *concreteness*, and *processing latency* that mediated the observed differences in argument quality. As mood interacted with the reward manipulation (see above), and only the low reward group showed the predicted mood effects on argument quality, this analysis was carried out for the low reward group only. To simultaneously test the predicted pattern of mediation (Baron & Kenny, 1986; Kenny, personal communication), (1) first, the independent variable, mood, was used to predict each of the mediators, argument concreteness, and processing latency. (2) Second, the independent variable, mood, was used to predict the dependent variable, argument quality. (3) Third, the independent variable and the two mediators were simultaneously entered into a regression to predict the dependent variable. If there is mediation, the regression analyses should be significant at each of these three steps ($p < .05$), as was the case here. The regression analyses in step 1 showed that mood significantly influenced both mediators, concreteness, $\beta = .312$, and processing style, $\beta = .353$. The analysis in step 2 established that mood had a significant effect on the dependent variable, argument quality, ($\beta = .349$).

For mediation to be established, the effects of the independent variable on the dependent variable must be less in the third equation (when the mediators are also present) than in the second equation (when the mediators are absent; Baron & Kenny, 1986). This was the case here: in the third regression analysis, both of the mediators (concreteness and processing style) were significant predictors of argument quality ($\beta = .258$ and .236; $p < .06$), and the direct effects of mood on argument quality were significantly reduced when the two mediators were also included in the analysis ($\beta = .342$ vs. .121, $t(63) = 12.44$; $p < .01$). These results confirm that argument concreteness and processing style each functioned as significant mediators of mood effects on argument quality, consistent with the predicted mood-induced differences in processing style. However, mediation was only partial as is often the case with

complex phenomena with multiple causes. The effects of mood on argument quality remained significant even when the mediating variables were included in the analyses ($p < .05$). These results suggest that the mediators are "indeed potent, albeit not both a necessary and a sufficient condition" for the effect to occur (Baron & Kenny, 1986, p. 1176). This pattern is consistent with the implications of the AIM, as well as other studies of affect and cognition that typically indicate only partial, and not complete mediation of mood effects on social cognition and behavior (Fiedler & Bless, 2001; Forgas, 1999, 2002). This analysis clearly shows that positive mood tended to reduce, and negative mood tended to increase both argument concreteness and processing latencies, consistent with the theoretical prediction that negative moods should trigger a more concrete, detail-oriented and accommodative processing style (Fiedler & Bless, 2001; Forgas, 2002).

General discussion and conclusions

Despite accumulating evidence for the role of affect in many social cognitive tasks (Bless, 2001; Fiedler, 2001; Forgas, 1995, 2002; Fiedler & Bless, 2001; Petty et al., 1997, 2001; Sedikides, 1995; Sinclair & Mark, 1992, 1995), insufficient attention has been paid to the role of moods in the way people use social influence strategies, and produce persuasive messages in particular. These four experiments provide convergent evidence that slight changes in incidental mood can produce significant differences in the quality and effectiveness of the persuasive arguments people produce. The reliability of these mood effects is confirmed by the fact that similar results were obtained both in hypothetical situations and in realistic interactions, with a variety of attitude and interpersonal topics, using a range of different mood induction procedures and irrespective of the popularity and social desirability of the position argued. In particular, the mediational analyses in Experiments 1, 2, and 4 provided specific evidence that mood-induced differences in the concreteness of the arguments were implicated in the observed differences in argument effectiveness, as suggested by affect-cognition theories such as the accommodation/assimilation model (Bless, 2001; Fiedler, 2001). Experiment 4 also showed that mood effects on persuasive arguments can be reduced or eliminated when a strong external motivation is provided to participants.

There was also some evidence for the greater use of affect-congruent information in the persuasive messages produced, consistent with affect-priming theories and the Affect Infusion Model (Forgas, 2002), but these valence effects did not influence argument effectiveness. These results make sense in terms of the theoretical predictions, and are also consistent with other studies suggesting that negative affect typically promotes a more concrete, accommodative, externally focussed and bottom-up information processing style. Such a processing style was previously found to reduce the incidence of judgmental errors and improve eye-witness memory (Forgas, 1998; Forgas et al., 2005). The present results show that this kind of concrete, accommodative processing also has direct benefits when it comes to the effective use of social influence strategies, such as the production of persuasive arguments. These experiments have several interesting theoretical, as well as some practical implications for our understanding of mood effects on interpersonal behavior.

Theoretical implications

Although considerable evidence now supports the existence of mood effects on memory and judgments (Berkowitz, 2000; Bless et al., 1996; Bower & Forgas, 2001; Bower, 1981; Eich & Macauley, 2000), not enough is known about the processing consequences of moods in interpersonal communication. These findings are generally consistent with recent affect-cognition theories that predict that good and bad moods should have an asymmetric effect on processing strategies and outcomes (Bless, 2001; Clore et al., 2001; Fiedler & Bless, 2001; Forgas, 1995, 2002; Petty et al., 1997; Schwarz, 1990; Sinclair & Mark, 1992, 1995; Wegener & Petty, 1994). There is growing evidence that negative moods often promote a more accommodating and concrete information processing style that often results in more accurate judgments (Fiedler et al., 1991; Fiedler & Bless, 2001; Sinclair, 1988). For example, in a series of experiments we found that happy moods increased and negative moods decreased the incidence of judgmental distortions such as the fundamental attribution error (Forgas, 1998), and negative moods also significantly improved the accuracy of eyewitness memories (Forgas et al., 2005). Other studies by Fiedler et al. (1991) also showed that positive affect promotes a more abstract and constructive processing style, increasing the likelihood that impression formation judgments will be influenced by previously primed information.

The present experiments significantly extend this literature by demonstrating for the first time a direct link between mood and the effectiveness of strategic interpersonal behaviors such as the production and use of persuasive messages. What can these tell us about the precise processing strategies that produced these effects? The results of the mediational analyses in Experiments 1, 2, and 4 clearly show that mood effects on argument quality were significantly mediated by the degree of concreteness of the arguments produced. Further, the finding that processing latencies were longer in negative mood, and mediated argument quality (Experiment4) also supports the notion that negative mood facilitates a more attentive, concrete and accommodative processing style (Bless, 2001).

Why should more concrete arguments promoted by negative mood be more effective than abstract arguments? Extensive theorizing about rhetorical effectiveness ever since Aristotle assumed that arguments that are rich in concrete detail and contain more specific, factual information tend to be more effective in persuading an audience. (Cooper, 1932). There is also specific psychological evidence

demonstrating that concrete and specific information tends to be perceived as more interesting and is better recalled subsequently (Sadowski, 2001). The extensive literature on persuasive communication also suggest that concrete, specific arguments may work better when it comes to communicating relevant knowledge, and such arguments also convey a greater aura of expertise and authority to an audience (Eagly & Chaiken, 1993; Hovland et al., 1953).

We should also note that our findings are broadly consistent with previous work by Rhodewalt and Comer (1979), who found that negative mood participants (who were frowning while producing counter-attitudinal persuasive messages) became more persuaded of their advocated position than did individuals who were in a neutral or positive (smiling expression) condition. The greater persuasive power of arguments produced in a negative mood seems consistent with the more concrete, situationally focused, accommodative processing promoted by negative mood (Bless & Fiedler, 2006). However, our results seem at odds with an experiment by Bohner and Schwarz (1993) who reported that happy persons produced better persuasive arguments, but only when arguing for an unfamiliar, counter-attitudinal message. The authors predicted that this effect should be due to positive moods producing "greater creativity in production tasks" (p. 696). However, as no mood effects on argument originality were found, the authors concluded, it is "unclear from the present data how this effect is mediated" (p. 716). We also collected data about argument creativity and originality here (Experiments 2 and 4) in the hope of reconciling our findings with that of Bohner and Schwarz (1993), but we also found no mood effects on creativity. Unfortunately, a direct comparison of the two studies is difficult as Bohner and Schwarz (1993) did not use an interpersonal persuasion task, did not demonstrate actual argument effectiveness on naïve participants, and do not report evidence about processing strategies. Thus, it remains for future work to discover what role, if any, these variables might play in moderating positive and negative mood effects on argument quality.

The true persuasiveness of a message is best tested in terms of its actual effectiveness in producing attitude change in naïve persons, as was done here (Experiment 3), rather than in terms of experts' ratings. The present findings show that arguments written by negative mood participants actually produced greater attitude change in naïve recipients. Our findings also broadly mirror the weight of the existing empirical and theoretical evidence showing that negative affect also promotes the more systematic and elaborate processing of *received* messages (Bless et al., 1996; Petty et al., 1997, 2001; Sinclair & Mark, 1992, 1995; Wegener & Petty, 1994).

What can these results tell us about the cognitive mechanisms responsible for strategic communication, and the production and use of persuasive messages in particular? It is most likely that negative affect and the accommodative and externally oriented processing style it promotes increased people's ability to focus on concrete, situationally relevant information in producing better persuasive messages (Bless, 2001; Fiedler & Bless, 2001). Of course, it is quite likely that these effects also depend on a variety of contextual factors. For example, environmental cues, facial expressions, hedonic relevance and other affective cues can all influence the way people process and deal with social information (Ottati et al., 1997; Soldat & Sinclair, 2001; Wegener & Petty, 1994). Also, as our results show, when motivation to produce good arguments is already high, mood effects tend to diminish, as found in Experiment 4. Indeed, the conscious motivation to do well may paradoxically undercut the subconscious beneficial cognitive consequences of negative mood, and may result in less effective arguments than would be the case without the reward manipulation. This result is entirely consistent with theories such as the Affect Infusion Model, that specifically predict that automatic and spontaneous mood effects on cognition should be reduced or eliminated when explicit motivational pressures mandate a particular processing strategy (Forgas, 2002).

Several other theories may also be relevant to the findings reported here (Berkowitz, 2000; Clore et al., 2001; Schwarz, 1990; Stroessner & Mackie, 1992). For example, Martin's (2000) affect as input model, Wegener and Petty's (1994) hedonistic contingency hypothesis, as well as Schwarz' (1990) cognitive tuning model imply that negative moods can inform people of the need to engage in more attentive, vigilant processing. Several studies found that negatively valenced cues can lead to more systematic processing, and positively valenced cues trigger less detailed and more superficial processing of social information (Sinclair & Mark, 1992, 1995; Sinclair, Soldat, & Mark, 1998; Soldat & Sinclair, 2001). It is important to note however that the effects demonstrated here are unlikely to be due to simple mood-induced differences in processing effort and vigilance (Bless, 2001). Evidence for greater concreteness in negative mood (Experiments 1, 2, and 4) specifically supports the view that affective states indeed recruit qualitatively different processing strategies, consistent with a dichotomy between concrete, accommodative (in negative mood) vs. abstract, assimilative (in positive mood) processing styles (Bless, 2001; Fiedler, 2001) that can account for just the kind of differences in persuasive efficacy that was found here.

Practical implications

Using effective persuasive messages is an important skill in everyday life. Indeed, much everyday social interaction consists of the exchange of verbal utterances designed to exert social influence on others. Producing persuasive messages to influence the attitudes and behaviours of others represents a demanding and complex cognitive task. Despite extensive recent interest in affective phenomena (Bless, 2001; Bower & Forgas, 2001; Eich & Macauley, 2000; Fiedler, 2001; Forgas, 2002; Sinclair & Mark, 1992, 1995), the role influence of affective states on realistic social

influence strategies in general, and the production of persuasive messages in particular has received little attention to date (Eagly & Chaiken, 1993).

The finding here that negative mood increased, and positive mood decreased the efficacy of persuasive messages can be of importance in many applied spheres where such communications are important. Industrial and organisational life in particular are replete with encounters involving persuasive communication (Forgas & George, 2001). Although there is strong evidence for the many benefits of positive affect in organizational settings, our results suggest that these benefits are not universal. Tasks that call for concrete, situationally oriented and bottom-up processing may sometimes be better performed in mild negative moods (Forgas, 1998, 2002; Forgas et al., 2005; Sinclair, 1988). Another sphere where mood effects on persuasion are likely to be important is in personal relationships. Managing and maintaining successful relationships and avoiding conflict involve a great deal of persuasive communication, often in conditions that are characterized by conflict and intense affective involvement (Fletcher, 2002). It is an intriguing possibility that mild negative affect may actual promote a more concrete and more situationally attentive communication style in intimate relationships.

An interesting implication of our results is that they highlight the potentially adaptive and beneficial consequences of negative mood, an issue with important practical consequences. There has been overwhelming emphasis on the various benefits of positive affect in the recent applied literature on organisational behaviour, health behaviours, relationship research, and the like (Ciarrochi, Forgas, & Mayer, 2005). Happy people are often represented as being more creative, flexible, motivated and effective on a number of tasks (Forgas & George, 2001). Our findings, together with a growing number of experimental studies, suggest that positive affect is not always desirable (Sinclair, 1988). Several studies now show that people in a negative mood are less prone to judgmental errors (Forgas, 1998), are more resistant to eyewitness distortions (Forgas et al., 2005), and are less likely to adopt dysfunctional self-handicapping strategies (Alter & Forgas, 2006). To this list we may now add another caveat: people in a negative mood may also be better at producing high-quality and effective persuasive messages. These findings thus extend the literature on mood effects on judgments and behaviours into the new domain of social influence strategies by showing that negative affect may also promote the production of more successful and effective persuasive messages.

Limitations and future prospects

It should be noted that there are also some important limitations to these results. Past evidence suggests that mood effects on cognition are quite subtle, and often depend on contextual factors (Forgas, 1995, 2002). For example, in circumstances that call for more motivated processing (e.g. due to the increased personal relevance of the task; Forgas, 1999, 1995) the effects of mood on persuasive efficacy may well be reduced, as was in fact found here in Experiment 4. These effects may also be highly sensitive to contextual, situational and individual difference variables, such as personality characteristics, the relationship to the partner, the status, identity, and power of the communicator relative to the recipient, and the likely hedonistic consequences of processing choices (Eagly & Chaiken, 1993; Petty et al., 1997, 2001; Wegener & Petty, 1994). There is considerable scope in future studies to explore the role of various pragmatic variables in recruiting different processing strategies, and thus mediating the ensuing mood effects on interpersonal communication and persuasion.

In line with much of the persuasion literature, we looked at typical social attitude and interpersonal issues here that were eminently amenable to factually based persuasion. Although it seems reasonable to assume that the overwhelming majority of persuasive situations in real life should be open to the use of concrete—and more effective—arguments, there may well be exceptions when greater concreteness recruited by negative mood may not result in more effective persuasion. It remains for future research to explore whether negative mood also promotes persuasive effectiveness when the topics in question are intrinsically abstract and non-factual, such as messages about unobservable internal states, feelings, metaphysical issues or phenomenological experiences.

Future experiments may also provide additional insights into the precise nature of the processing mechanisms responsible for these effects. For example, analysing recall memory for the information used by happy and sad individuals as they produce their persuasive messages may provide additional evidence about the kind of processing strategies employed. Such an approach has been successfully used in past studies assessing mood effects on judgments, indicating that memory is often a useful indicator of the processing style used (Bower & Forgas, 2001; Forgas, 1995; Sedikides, 1995). Another issue concerns the external validity of our results, a question of particular importance in studies of interpersonal communication. Given the consistency of the results across three experiments, different attitude topics and different mood inductions we can be reasonably confident of the reliability of these effects. Nevertheless, it would be important to demonstrate corresponding mood effects on interpersonal communication in naturalistic situations and using a variety of paradigms. For example, future experiments may do much to establish the generality of these effects, by recording and analysing the persuasive messages used by happy and sad communicators in face-to-face encounters.

Producing persuasive messages to influence others is necessarily a complex and demanding cognitive task that requires a degree of elaborate processing. These four experiments suggest that in many situations, negative moods may increase, and positive moods decrease the quality and efficacy of persuasive messages. Much has been learned about the way affective states influence memory, thinking and judgments in recent years, yet not enough is known

about how feelings impact on strategic interpersonal behaviours such as persuasion. Extrapolating from recent research on affect and social cognition, these studies confirmed that moods can have a significant impact on the quality of persuasive messages, due to the kind of information processing strategies they generate. Contemporary affect-cognition theories (Bless, 2001; Fiedler, 2001; Forgas, 1995, 2002; Schwarz, 1990) appear particularly relevant to understanding these effects. Further research on affective influences on complex interpersonal behaviours should be of considerable theoretical, as well as applied interest.

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