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Mood States Influence the Production of Persuasive Arguments¹

This study examined the impact of mood on the production of persuasive arguments. Research demonstrates that a happy (as opposed to neutral or sad) mood often leads to less systematic information processing but to greater creativity in production tasks. It was hypothesized that individuals in a happy (as opposed to sad) mood produce more original and more persuasive arguments, especially when asked to advocate an unfamiliar (i.e., counterattitudinal) position. Eighty-seven college students were put in a happy or sad mood and asked to write a proattitudinal or a counterattitudinal essay on one of two topics. Happy subjects generally rated their own essays as being more persuasive than sad subjects did. External ratings revealed, however, that happy subjects' essays were judged to be more persuasive when they were counterattitudinal but not when proattitudinal. No mood effects on various measures of originality were found. Thus support for the hypothesis was found with respect to judged persuasiveness but not to originality. Results are discussed within the framework of models of mood and cognition.

Are happy people more persuasive than sad people? Is it easier to produce novel and original arguments while in a good rather than a bad mood? Theories of affect² and social cognition suggest that this may actually be the case (e.g., Fiedler, 1988; Isen, 1984; Schwarz, 1990). Empirical evidence bearing on this suggestion, however, is scarce. Various studies on mood and persuasion have examined the impact of affective states on the *processing* of externally presented persuasive arguments, whereas none have explored the influence of mood states on the *generation* of new arguments without external input (for overviews, see Eagly & Chaiken, 1993; Schwarz, Bless, & Bohner, 1991). In the present article, we provide initial evidence for a possible link between mood and message generation. We first address the impact of

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affective states on information processing, review its implications for message reception, and then turn to its implications for message generation.

Affect and Cognition

Various models of affect and cognition predict that negative affective states lead to a narrowed focus of attention (Bruner, Matter, & Papanek, 1955; Easterbrook, 1959) and a more analytic style of information processing (Fiedler, 1988; Schwarz, 1990), whereas positive affective states lead to more flexible categorizations (Murray, Sujan, Hirt, & Sujan, 1990; Sinclair & Mark, 1992) and a more heuristic processing style (Isen, 1984; Kuhl, 1983; Schwarz, 1990). Fiedler (1988) used the terms "loosening" and "tightening" to characterize the effects of positive and negative mood, respectively, on cognitive processes.

Recently, Schwarz (1990) proposed that the impact of affective states on information processing may be mediated by the *informative functions of affective states*. Positive mood is usually associated with nonproblematic situations, in which the person perceives neither a lack of positive outcomes nor a threat of negative outcomes. Negative mood, on the other hand, is experienced when the situation is characterized by a lack of positive or the threat (or presence) of negative outcomes (for related arguments, cf. Frijda, 1988; Higgins, 1987). Thus Schwarz assumes that positive mood informs the individual that his or her needs are satisfied and that the current environment is safe. This may lead the person to apply simplifying cognitive strategies and to explore unusual, playful ways of thinking. Negative mood is assumed to inform the person about a lack of desired outcomes. To change this unpleasant situation, a careful and detailed analysis of its particular features and their causal connections is necessary. Therefore, negative mood should lead the person to process the information at hand systematically and to use conservative rather than innovative strategies (see Schwarz, 1990, for a discussion of the limitations of mood-induced differences in processing style).

Research has demonstrated that the impact of mood on processing strategies is not limited to evaluations of the situation that elicited the mood (Bohner, Bless, Schwarz, & Strack, 1988) but may generalize to independent cognitive tasks (for reviews, see Fiedler, 1988; Schwarz, 1990). In sum, the cognitive strategies employed by persons in a positive mood can be described as heuristic, simplifying, and based on less systematic processing of external information, but also as more unusual, intuitive, flexible, risky, and creative (Fiedler, 1988; Isen, Daubman, & Nowicki, 1987; Isen, Means, Patrick, &

Nowicki, 1982). Accordingly, we may expect recipients' affective states to influence the processing of the persuasive messages that they receive.

Affect and Persuasion

If being in a negative mood fosters systematic processing, negative mood states should facilitate the task of subjects in a typical persuasion experiment, which ideally involves a careful and detail-oriented evaluation of externally presented arguments. Recipients in a positive mood, on the other hand, should process message arguments less systematically, reflecting that positive moods foster heuristic processing. In line with this theorizing, studies on mood effects on message *processing* have typically shown that recipients in a negative or neutral mood were more likely to process message arguments systematically. They changed their attitudes toward the advocated position when strong arguments were presented, but not when the arguments were weak or specious (e.g., Bless, Bohner, Schwarz, & Strack, 1990; Bless, Mackie, & Schwarz, 1992; Mackie & Worth, 1989; Worth & Mackie, 1987). Recipients in a positive mood, on the other hand, were persuaded even if weak arguments (e.g., Bless et al., 1990) or no substantive arguments at all (Bohner, Crow, Erb, & Schwarz, 1992, Experiment 1) were presented.

This interaction pattern of mood and argument strength is a robust and well-documented finding, which has been replicated by independent researchers, using different mood inductions and different messages, in studies conducted in Germany, the United States, and Australia (see Schwarz et al., 1991, for an overview). The only divergent findings were reported by Petty, Schumann, Richman, and Strathman (1993), who obtained mood-congruency effects. It seems, however, that the manipulations of message strength used by these authors were rather weak, suggesting that main effects of mood may emerge for relatively ambiguous arguments.

In the available studies on mood and persuasion, the subjects' task was to *receive* a message, that is, to encode and evaluate the presented arguments to form an attitude judgment. Thus these experiments imposed constraints on subjects' creativity and intuition, and subjects in a positive mood were usually less "efficient" than subjects in a neutral or negative mood, in the sense that they differentiated less between strong and weak arguments.

On the other hand, the primary cognitive processes and the impact of mood on those processes are expected to be different when a person's task is to *produce* a message. Next, we consider the nature of this task.

Message Generation, Creativity, and Affect

Message production is characterized by the recall of relevant information from memory and the combination of this information to generate persuasive arguments. Although little is known about what renders a particular argument persuasive (Fishbein & Ajzen, 1981), there is reason to assume that the persuasiveness of a message should increase with the novelty and originality of the arguments it contains (see Morley & Walker, 1987; Vinokur & Burnstein, 1974). For example, Vinokur and Burnstein (1974, Experiment 2) found that attitude change induced by group discussion was a function of *partially shared* arguments, that is, arguments that were *novel* for many of the group members. Furthermore, the presentation of novel arguments led to attitude change even in the absence of group discussion (Vinokur & Burnstein, 1974, Experiment 3). Similarly, a number of investigators (e.g., Greenwald & Albert, 1968; King & Janis, 1956) found that the persuasive impact of a self-generated message increased when subjects were given the possibility of actively improvising arguments. Moreover, it has been demonstrated that people perceive arguments they have improvised themselves as more original than arguments that are externally presented (Greenwald & Albert, 1968; see also Greenwald, 1968).

Of course, originality per se is not a sufficient condition for persuasiveness: Especially at high levels of originality, arguments might be perceived as absurd or unrealistic, rendering the message less persuasive. But, given that they are perceived as plausible, original arguments are expected to be seen as more persuasive than (equally plausible) unoriginal ones.

If the generation of persuasive arguments partly depends on originality, how may a person's affective state influence this process? Outside the context of persuasion, it has been shown that persons in a positive (as opposed to neutral or negative) mood are more original and creative in cognitive tasks. For example, happy people exhibited greater flexibility in categorization by finding a greater number of, and more original, differences or similarities between television shows, depending on which aspect (similarities vs. differences) was highlighted by task instructions (Murray et al., 1990). Similarly, individuals in a positive mood produced more remote and original word associations (Isen, Johnson, Mertz, & Robinson, 1985). In problem-solving experiments, happy subjects were more likely than subjects in a neutral mood to find a solution that required the use of an object in an unusual fashion (e.g., Isen et al., 1987). Extending the well-documented link between positive mood and originality to the area of message production, we expected

that positive mood might facilitate the generation of novel and original arguments, which should contribute to greater persuasiveness of the messages produced. To date, research into message production has not addressed this issue.

Studies of Message Production

As any literature search indicates, research addressing the potential link between affect and the processes involved in message production is scarce. Most studies on the effects of message production have been concerned with changes in the attitude of the message source rather than with message content or effects on another recipient (e.g., A. Cohen, 1962; Festinger & Carlsmith, 1959; Janis & King, 1954; King & Janis, 1956).

There are few studies directly relating affect and message production. Sypher and Sypher (1988) reported an experiment on the impact of interpersonal affect on message generation. They found that subjects generated a greater number of arguments when these arguments were directed at a liked target than when they were directed at a disliked target. This effect seemed to be mediated by differences in the amount of information about the target that was available. However, subjects' affective state was not assessed. Thus it is unclear whether greater persuasiveness was a function of subjects' more positive affective state or of a more differentiated impression of the liked than of the disliked recipient.

In another experiment, Rhodewalt and Comer (1979) addressed the question how emotional expressions during message production influence attitudes. These authors used the facial-feedback paradigm (Laird, 1974) to induce a smiling, frowning, or neutral facial expression and had their subjects write counterattitudinal essays. They found that subjects in the frowning condition showed more attitude change toward the position they advocated in their essays than did subjects in either the neutral or the smiling conditions. Rhodewalt and Comer concluded that cognitive dissonance, which is induced by subjects' compliance with the counterattitudinal task, may be amplified by a frowning expression and attenuated by a smiling expression. Unfortunately, they did not report data bearing on the content of their subjects' essays. Nevertheless, their results seem to indicate that the effects of forced compliance might counteract the potentially greater productivity and creativity under positive affect.

Thus the limited empirical evidence seems to indicate that positive mood may facilitate the generation of persuasive messages as long as no cognitive dissonance is induced through the task. Drawing on these findings and on

theoretical work on affect and cognition (Fiedler, 1988; Schwarz, 1990), a number of hypotheses can be derived.

Hypotheses

We hypothesized that positive mood should inform the person that his or her current environment is safe (Schwarz, 1990). This should facilitate a playful cognitive strategy, in which the individual is more likely to improvise new arguments actively when faced with the task of generating a persuasive message. In addition, it has been hypothesized that positive mood leads to a richer cognitive context, bringing more and more diverse material to mind (Isen, 1984; Isen & Daubman, 1984), resulting in greater cognitive flexibility and creativity (Isen et al., 1987; Isen et al., 1985; Murray et al., 1990). This may further enhance the likelihood that novel and unusual arguments are generated.

Based on these theoretical accounts and on the assumption that novelty of arguments is positively associated with persuasiveness (Morley & Walker, 1987; Vinokur & Burnstein, 1984), we formulated the following hypotheses:

Hypothesis 1: A message produced while in a positive mood contains more original arguments than a message produced while in a negative mood.

Hypothesis 2: A message produced while in a positive mood is perceived as more persuasive than a message produced while in a negative mood.

The mood effect specified in Hypothesis 2 was expected to become apparent in the subjects' own ratings as well as in external judges' ratings. Furthermore, we expected these mood effects to be the more pronounced, the less information and prior experience with the topic a person had. Therefore, we expected to obtain these effects when a person was asked to generate arguments on relatively novel topics or for unusual positions that he or she would not normally favor. For highly familiar topics and for positions that the person agreed with, mood effects were expected to be weak, because, under these circumstances, individuals do not have to create entirely new arguments but can derive arguments directly from their existing attitude structure. This leads us to our third and fourth hypotheses:

Hypothesis 3: The impact of mood on the originality of messages produced is more pronounced for subjectively unfamiliar (e.g., counterattitudinal) positions than for subjectively familiar (e.g., proattitudinal) positions.

Hypothesis 4: The impact of mood on the persuasiveness of messages produced is more pronounced for subjectively unfamiliar (e.g., coun-

terattitudinal) positions than for subjectively familiar (e.g., proattitudinal) positions.

These hypotheses were tested in a laboratory experiment: Subjects in whom either positive or negative affect had been induced were asked to write an essay on one of two different topics, which were of moderate personal relevance to subjects. Thus we controlled for the *familiarity of the topics*. The *familiarity of the position* to be advocated was systematically varied: Subjects were instructed to advocate either a proattitudinal (i.e., familiar) or a counterattitudinal (i.e., unfamiliar) position. We assumed that with the moderately involving topics used, subjects' familiarity with arguments supporting a proattitudinal position would be higher than their familiarity with arguments advocating the opposite, counterattitudinal position. (This may be different for topics of very low or very high personal relevance; see Eagly & Chaiken, 1993, pp. 97-101, for further discussion.)

Several measures of the messages' perceived persuasiveness and originality were assessed. These were provided by the message producers themselves as well as by independent judges from the same population.

In addition, expert judges rated and content analyzed all essays. These analyses were used in hypothesis testing (e.g., ratings of originality), in additional checks on the validity of manipulations (e.g., ratings of message position), and in exploring other bases for judgments of persuasiveness (e.g., content or style).

To avoid inducing cognitive dissonance in the counterattitudinal conditions, we gave subjects sufficient justification for their task (see description of procedure below). Furthermore, we assessed subjects' postmessage attitudes to detect any potential threat to validity resulting from attitude change due to dissonance reduction.

Method

Subjects and Design

Twenty-six female and 61 male students of the University of Mannheim, Germany, with a mean age of 23.1 years, were randomly assigned to the conditions of a 2 (Mood: positive vs. negative) \times 2 (Topic: public television system vs. reducing school entry age) \times 2 (Position: proattitudinal vs. counterattitudinal) between-subjects design. The number per cell ranged from 10 to 11, and proportions of male and female subjects were about equal across

conditions. Subjects received DM 8 (approximately U.S. \$4 at the exchange rate of the time) for their participation.

Overview of Procedure

Subjects participated in groups of 4 to 6. Each subject was seated at a separate table to minimize interaction. The experimenter informed the subjects that the experiment dealt with the linguistic features of essays and their relationship with characteristics of the author, such as age and education. The first essay served as the mood manipulation, and the second essay as the persuasive message that was the target of analysis. The questions that subjects were asked after each essay consisted of the mood manipulation check and dependent variables, respectively. At the end of the experimental session, subjects were probed for suspicion and then debriefed. No subject expressed suspicion with regard to the true purpose of the experiment.

Independent Variables

MOOD

Positive or negative mood was induced by asking subjects to write a text with the heading "A Beautiful, Positive Experience" or with the heading "A Bad, Negative Experience." We gave subjects 15 min to write and encouraged them to relive the event in their mind's eye and to give a vivid report, including their feelings and emotions (for the effectiveness of this type of mood induction, see Bless et al., 1990; Strack, Schwarz, & Gschneidinger, 1985). After completion of this task, subjects were given a short questionnaire, in which a question to assess the effectiveness of the mood manipulation was embedded. It read, "How do you feel now, at this moment?" and was accompanied by a rating scale ranging from 1 (*very bad*) to 9 (*very good*).

In addition to subjects' self-reports of current mood, the emotional content of their descriptions of experiences was analyzed by two independent judges, who were blind to the experimental conditions and hypotheses. Following a procedure suggested by Abele (1990), the judges were instructed to decide for each text whether each of the following six emotions was expressed: happiness/joy, interest/positive surprise, sadness, fear, anger, and guilt/shame. Then the judges were asked to decide for each description, which of the emotions they thought "was dominant, i.e., best characterized the emotional tone of the entire text."

TOPIC

Subjects were then given 15 min to write another text, either with the heading "Are the Public Television Channels Necessary?" (TV topic condition) or with the heading "Should Children's Entry Age for Elementary School Be Reduced to Five Years?" (school topic condition). To provide readers with some background concerning these topics, we note that the West German television system used to be under public law. In 1985, the monopoly of the public television companies was eliminated by a change in the law, and private TV channels were allowed to broadcast. Meanwhile elementary school in West Germany usually starts at the age of 6 or 7. The variation of topic between these two alternatives served as a stimulus replication, to determine the generality of potential mood effects.

POSITION

We additionally instructed subjects either to oppose or to favor one particular side of the topic issue. A pretest conducted in the same semester as the experiment, with students from the same university, had indicated that a majority favored the public TV channels and was opposed to reducing school age to 5 years. Pretest attitudes, based on an independent sample of 40 subjects who were not eligible for participation in the experiment, were assessed on a scale ranging from 1 (*strongly disapprove*) to 10 (*strongly approve*). For the television topic, pretest subjects' mean was 8.00 ($SD = 2.47$), with 82.5% of the responses in the range from 7 to 10. Results for the school age topic were $M = 3.30$ and $SD = 2.69$; 72.5% of responses were in the range from 1 to 4.

Thus the additional instructions constituted a proattitudinal (in favor of public channels or against reduction of school age) or a counterattitudinal condition (against public channels or in favor of reduction of school age). To avoid any potential effects of cognitive dissonance, subjects were told that it was very important for this research to sample essays endorsing different positions on a variety of topics. Therefore, they would be asked to write two short essays with preassigned topics and positions and to answer some questions about the experiences they had while they were writing. It was further emphasized that subjects' responses would be kept strictly confidential.

Of course, the possibility of dissonance effects cannot be completely ruled out. However, no attitude change in the direction of subjects' assigned position was observed (see Results section). This speaks to the effectiveness of our precautions to avoid inducing cognitive dissonance.

Dependent Variables

Three sets of dependent variables were assessed: (a) attitude judgments and ratings of persuasiveness and originality by the subjects themselves; (b) ratings of persuasiveness, performed by independent judges from the same population as the subjects; and (c) content analyses and ratings of essay content and style, performed by three independent experts. Effective interjudge reliabilities (R) for both the naive and the expert judges were computed on the basis of mean interjudge correlations, using the Spearman-Brown formula (see Rosenthal & Rosnow, 1984, pp. 163-166). For each variable representing external ratings, the arithmetic mean among judges was used for statistical analyses. The three sets of measures will be described in turn, along with their respective reliability coefficients R .

SUBJECTS' RATINGS

Immediately after writing the second essay, subjects reported their attitude toward their assigned topic on a rating scale ranging from -4 (*strongly disapprove*) to $+4$ (*strongly approve*). Then subjects rated the persuasiveness and originality of their own arguments, each on a scale ranging from -4 (*not at all persuasive* [original]) to $+4$ (*very persuasive* [original]). Finally, subjects in the school topic condition reported their attitude toward public TV channels, and subjects in the TV topic condition reported their attitude toward reducing school age. Thus potential attitude change due to essay writing could be estimated by comparing subjects' attitudes toward their assigned topic to the baseline attitude of subjects who had *not* written about this topic.

PERSUASIVENESS RATINGS BY RANDOMLY SELECTED JUDGES

To obtain an external criterion of perceived persuasiveness, a subset of the essays was rated by an independent sample of 60 judges from the same subject population. Five essays were randomly drawn from each experimental condition, resulting in a total of 40 essays. Each judge was presented 10 essays representing the same position on the same topic. We decided to use only a subset of about half the essays for this part of the study, because asking judges to read and compare more than 20 essays would have been too time-consuming and might have produced lower reliabilities.

The judges were unaware of the fact that 5 of the essays they read had been written by a person in a positive mood, and 5 by a person in a negative

mood. Judges were randomly assigned to one of the four combinations of topic and position, so that each essay was evaluated by 15 judges. Judges received DM 5 (approximately U.S. \$2.50) for their participation. The 10 essays were presented in random order. Judges were instructed to (a) first read all 10 essays thoroughly and compare them with each other if they wished and (b) then rate the *persuasiveness* of each essay on a scale from 1 (*not at all persuasive*) to 11 (*very persuasive*). The judges were encouraged to use the full range of the scale. Effective interjudge reliabilities within each combination of topic and position were satisfactory to high, ranging from $R = .74$ to $R = .90$.

CONTENT ANALYSES

Three independent expert judges (research assistants in social psychology), who were blind to experimental conditions (except for topic), read and analyzed all 87 essays. Judges were instructed first to read a few essays to get a general impression. Then they counted the number of lines of the typed transcripts of each essay (effective reliability $R = .99$). A more exact measure, number of words, was assessed for about half of the essays.

Then judges were asked to unitize each essay into grammatically independent sentences, that is, syntactical units (Krippendorf, 1980, p. 61). For this purpose, the judges were reminded of relevant rules of the German language concerning punctuation and grammar to guide their decisions ($R = .97$ for the number of sentences identified).

Judges then categorized each sentence as either an argument or a general evaluative statement. General evaluative statements were defined as sentences that contained an explicit positive or negative evaluation but did not contain a specific argument. Some examples were provided, based on an independent preliminary reading by the first author. The judges coded each general evaluative statement about the essay's topic as positive (e.g., "If one really thinks about it, public television is absolutely necessary") or negative ("I am generally opposed to a reduction of school age"). Effective reliabilities for the number of positive and negative statements were $R = .87$ and $.85$, respectively.

Arguments were described by content categories, which had been identified by the first author in an independent preliminary reading (12 categories for the school topic and 13 categories for the TV topic). Some examples for each category were provided to judges. The judges assigned each argument that they identified to one of these categories or, if the argument was unique,

to a residual category. Then they coded each argument as opposing, favorable, or ambivalent. Ambivalent arguments were defined as those that neither opposed nor favored one side of the issue but offered an alternative solution (e.g., "It should not be up to the legislators to prescribe a minimum or maximum age for school entry, but the parents and the children themselves should decide"). Effective reliabilities were $R = .82, .94, .95,$ and $.74,$ for the total number of arguments and for numbers of opposing, favorable, and ambivalent arguments, respectively. Any argument that was presented more than once within the same essay was counted only once.

To provide a further check of the position manipulation, the expert judges rated the position expressed in each essay on a 7-point scale ranging from 1 (*clearly in favor of public TV channels [reducing school age]*) to 7 (*clearly opposed to public TV channels [reducing school age]*). Effective reliability of this variable was $R = .97.$

For exploratory purposes, the judges also counted the number of statements using the grammatical first or second person ($R = .92$). This was intended as a measure of subjects' expressed identification with the position they were asked to take. We did not formulate any explicit hypotheses pertaining to this variable. It seems plausible, however, that essays in which the source identifies him- or herself with the advocated position and directly addresses a reader may be seen as more persuasive than essays using a more impersonal style.

In addition, judges rated on 7-point bipolar rating scales how abstract versus concrete ($R = .59$), unoriginal versus original ($R = .25$), rational versus emotional ($R = .74$), and free of redundancy versus very redundant ($R = .37$) they thought each essay was. For purposes of exploration, ratings of comprehensibility and integratedness of the essays were additionally obtained. These variables will not be further discussed because they were of marginal importance to our hypotheses and low in reliability (both R s $< .25$).

Another, more objective, measure of originality was computed on the basis of the relative infrequency of arguments. This operationalization was assumed to come closer to the concept of novelty as defined in previous research (e.g., Vinokur & Burnstein, 1974). First, each argument was assigned a frequency value P , defined as the relative frequency of arguments belonging to its content category. Unique arguments that could not be grouped with any other argument were assigned a value of $P = 0$. The relative infrequency of an argument was then defined as $(1 - P)$. Finally, the originality of a persuasive message was defined as the sum of the relative infrequency values of the arguments it contained, $\Sigma (1 - P)$. The theoretical range of this variable

goes from 0 (meaning that every argument in a given essay is also contained in all other essays) to the number of arguments produced (meaning that none of the arguments in a given essay is contained in any other essay).

Analysis

To assess the effectiveness of our experimental manipulations, to test our hypotheses, and to explore potential mood effects not explicitly specified in our hypotheses, we used analysis of variance (ANOVA). Because of the exploratory nature of the study, the significance level was set at $\alpha = .10$. Given this criterion of significance, our sample size ($N = 87$), and a balanced design, statistical power to detect large effects ($f = .40$ or $\eta = .37$) was .975, power to detect medium-sized effects ($f = .25$ or $\eta = .24$) was .738, and power to detect small effects ($f = .10$ or $\eta = .10$) was .243 (J. Cohen, 1977).

Our data generally met the statistical criteria for conducting analyses of variance (ANOVAs) (see Appendix). Even where this was not the case, we see no reason to be overly concerned, because the F test is quite robust against violations of homogeneity of variances, given that a balanced and orthogonal design is employed (see, e.g., Rosenthal & Rosnow, 1984). Nevertheless, for those variables that did not meet the criterion of homoscedasticity, either we conducted appropriate transformations and repeated the analyses, or we additionally employed nonparametric tests. Details are reported in notes in the proper places.

Results

Preliminary Analysis

SEX OF SUBJECT

No significant main or interaction effects involving sex of subject were obtained. Therefore, all following results are based on 2 (Topic) \times 2 (Mood) \times 2 (Position) ANOVAs. Cell means, standard deviations, and tests of homogeneity of variances for the central dependent variables are reported in the Appendix.

SELF-REPORTED MOOD

The ANOVA yielded a main effect of mood induction. Subjects who had described a positive experience reported feeling better ($M = 6.44$) than

subjects who had described a negative experience ($M = 5.48$), $F(1, 79) = 6.31$, $p < .05$, $\eta = .27$. No other significant differences between conditions emerged. The magnitude of this mood effect, although not very large, is well in line with results of previous studies employing similar mood induction techniques (e.g., Bless et al., 1990; Strack et al., 1985).

AFFECTIVE CONTENT OF EXPERIENCES DESCRIBED

With respect to the dominant emotion, the two independent judges agreed in 71% of the cases. All disagreements were resolved by a third judge. This external coding revealed that the dominant emotion expressed in subjects' descriptions was positive for all 43 subjects in the positive mood conditions and negative for all 44 subjects in the negative mood conditions. Replicating previous findings (Abele, 1990), within the negative mood conditions, the emotion most frequently expressed was sadness. It was identified as the dominant emotion in 23 cases (52.3%) and coded as present by at least one of the two judges in 14 more cases, yielding a total of 37 cases (84.1%). The dominant emotion expressed in the positive mood conditions was happiness/joy (41 cases, 95.3%). Overall, we conclude that the mood induction was successful and that it seems justified to speak of happy and sad subjects to denote subjects in the positive and negative mood conditions, respectively.

POSITION OF ESSAYS

For ratings of message position, we obtained a highly significant interaction of position and topic, $F(1, 79) = 1022.10$, $p < .0001$, $\eta = .96$.³ No other significant effects emerged. Because the proattitudinal position was favorable toward public TV but unfavorable toward reducing school age, this interaction was in fact expected. It reflects that subjects in all conditions closely followed the instructions concerning message position, resulting in message ratings close to that endpoint of the scale that represented subjects' assigned position. Recall that position was rated on a scale ranging from 1, *clearly in favor*, to 7, *clearly opposed*. The means were 6.65 for school proattitudinal, 1.37 for school counterattitudinal, 1.66 for TV proattitudinal, and 6.60 for TV counterattitudinal.

GENERAL EVALUATIVE STATEMENTS

For both positive and negative evaluative statements, significant interactions of position and topic emerged. No other effects were reliable, all $p > .10$.

Subjects who wrote in favor of either a reduction of school age or public television produced more positive evaluations ($M = 0.52$ and 0.79 , respectively) than subjects who wrote against either topic ($M = 0.03$ and 0.03), $F(1, 78) = 41.50, p < .0001, \eta = .59$. For negative evaluations, the opposite pattern was obtained ($M = 0.89$ and 0.91 vs. $M = 0.00$ and 0.05 , respectively), $F(1, 78) = 53.42, p < .0001, \eta = .64$.⁴ These results also speak to the effectiveness of the position manipulation.

LENGTH OF ESSAYS, NUMBER OF ARGUMENTS, AND PROPORTIONS OF FAVORABLE, OPPOSING, AND AMBIVALENT ARGUMENTS

Essay length (in terms of both number of lines and number of words) was independent of experimental conditions, all $p > .12$. The mean number of arguments generated was 3.96 . A significant main effect of topic was found for this variable: Subjects who wrote about television produced more arguments ($M = 4.31$) than subjects who wrote about school age ($M = 3.60$), $F(1, 79) = 5.69, p < .05, \eta = .26$. In addition, there was a three-way interaction, $F(1, 79) = 3.22, p < .10, \eta = .20$. This was due to the result that sad subjects produced the smallest number of arguments when writing proattitudinal essays on school age ($M = 2.85$) and the largest number when writing proattitudinal essays on television ($M = 4.70$). All other $ps > .25$. No other effects were reliable.

ANOVAs on the proportions of favorable and opposing arguments yielded highly significant interactions of topic and position, $F(1, 79) = 515.57, p < .0001, \eta = .93$; and $F(1, 79) = 380.31, p < .0001, \eta = .91$. The vast majority of the arguments produced was in line with instructions, with favorable arguments prevailing in the school age/counterattitudinal and public TV/proattitudinal conditions and opposing arguments prevailing in the other two conditions (see Table 1 for means). No effects involving mood were detected, all $p > .15$.⁵ These findings further corroborate the conclusion that subjects followed instructions pertaining to message position.

Principal Analysis

ORIGINALITY: TESTING HYPOTHESES 1 AND 3

Overall, subjects' own ratings of originality were rather low (grand mean = -0.57 , on a scale ranging from -4 to $+4$). A marginal main effect of topic was obtained. Subjects who wrote about school age tended to perceive their essays as more original ($M = -0.14$) than did subjects who wrote about public TV ($M =$

Table 1
Mean Total Number of Arguments and Proportions of Favorable, Opposing, and Ambivalent Arguments Produced, as a Function of Topic and Assigned Position

	Message topic and position			
	School		TV channels	
	Proattitudinal	Counterattitudinal	Proattitudinal	Counterattitudinal
Total number	3.37	3.75	4.20	4.00
P(fav.)	.05	.94	.92	.11
P(opp.)	.94	.02	.06	.83
P(amb.)	.01	.04	.03	.06

Note. P(fav.) = proportion of favorable arguments; P(opp.) = proportion of opposing arguments; P(amb.) = proportion of ambivalent arguments. Data are collapsed across levels of the mood factor. Number per cell is 21 to 22.

-1.00), $F(1, 79) = 3.40$, $p < .10$, $\eta = .20$. However, no effects involving mood emerged, all other F s < 1 .

No effects of the experimental conditions were detected on experts' ratings of originality, all F s < 1 . This may not be surprising in light of the very poor agreement among judges for this variable ($R = .25$).

Finally, we tested whether originality defined as low relative frequency would show the hypothesized effects. Contrary to Hypothesis 1, happy subjects did *not* produce more infrequent arguments ($M = 2.22$) than sad subjects did ($M = 2.36$), $F < 1$. Neither was the interaction of mood and position reliable, this and all other F s < 1 . Thus Hypotheses 1 and 3 were not confirmed. None of the three different experimental operationalizations of originality (subjects' ratings, experts' ratings, and relative infrequency of arguments generated) yielded any effects for the experimental mood manipulation.

PERSUASIVENESS: TESTING HYPOTHESES 2 AND 4

As predicted in Hypothesis 2, a main effect of induced mood was obtained for subjects' ratings of persuasiveness. On a scale ranging from -4 to +4, subjects in a positive mood rated their own essays as more persuasive ($M = 1.19$) than did subjects in a negative mood ($M = 0.09$), $F(1, 79) = 5.52$, $p < .05$, $\eta = .26$. Contrary to Hypothesis 4, however, the influence of mood was independent of position; except for the main effect of mood, all other effects were nonsignificant, $p > .15$.

A more stringent test of perceived persuasiveness is provided by the ratings of independent judges. The ANOVA yielded significant main effects of position and of mood. Not surprisingly, proattitudinal essays were judged

Table 2

Mean Persuasiveness Ratings by Independent Judges as a Function of Mood and Assigned Position

Mood	Message position	
	Proattitudinal	Counterattitudinal
Positive	6.33	6.09
Negative	6.16	4.05

Note. Scale from 1 (*not at all persuasive*) to 11 (*very persuasive*). Data are collapsed across levels of the topic factor. Number of essays analyzed per cell is 10.

to be more persuasive ($M = 6.24$) than counterattitudinal ones ($M = 5.07$), $F(1, 32) = 5.83, p < .05, \eta = .39$. More interestingly, as predicted in Hypothesis 2, essays written by happy subjects were perceived as more persuasive ($M = 6.21$) than essays written by sad subjects ($M = 5.10$), $F(1, 32) = 5.14, p < .05, \eta = .37$. Moreover, these main effects were qualified by an interaction of mood and position, $F(1, 32) = 3.69, p < .10, \eta = .32$. Means pertaining to this interaction are shown in Table 2. Simple effects analyses revealed that, in line with Hypothesis 4, essays of happy subjects were rated as being more persuasive than those of sad subjects when they were counterattitudinal, $F(1, 32) = 8.77, p < .01, \eta = .46$, but not when they were proattitudinal, $F < 1$. This interaction of mood and position was independent of topic, $F < 1$ for all effects involving the topic factor.

Because the result patterns for subjects' ratings and external ratings diverged, we computed the correlation between these two measures. This correlation analysis revealed that external ratings of persuasiveness were not reliably related to subjects' own ratings, $r(38) = .23, n.s.$ ($r_{\text{proattitudinal}[18]} = .33, n.s.$; $r_{\text{counterattitudinal}[18]} = .22, n.s.$).

Additional Exploratory Analyses: Essay Content and Style

Additional analyses were conducted to examine potential mediators of perceived persuasiveness. Experts' ratings of concreteness and redundancy did not show any significant effects of the independent variables. However, two of the style-related variables revealed result patterns that might account for the mood effects on judgments of persuasiveness found for counterattitudinal essays. These are the expert rating on emotionality versus rationality and the number of statements using the first or second person. The means of these two variables are displayed in Table 3.

For emotionality, a significant interaction of mood and position was obtained, $F(1, 79) = 9.53, p < .01, \eta = .33$. Counterattitudinal messages of happy subjects were perceived as less emotional ($M = 3.20$, with 1 = *rational*

Table 3
Means of Style-Related Variables as a Function of Mood, Topic, and Assigned Position

Mood	Message position	
	Proattitudinal	Counterattitudinal
Emotionality ^a		
Positive	4.03	3.20
Negative	3.63	3.77
Number of first- and second-person statements ^b		
Positive	1.72 (.17)	0.57 (.06)
Negative	0.71 (.08)	1.68 (.17)

Note. Data are collapsed across levels of the topic factor.

a. Higher values indicate greater emotionality (scale ranging from 1, *rational*, to 7, *emotional*).

b. Proportions of total statements per essay are given in parentheses. Number per cell is 21 to 22.

and 7 = *emotional*) than those of sad subjects ($M = 3.77$). This pattern was reversed for proattitudinal messages ($M_{\text{positive}} = 4.03$, $M_{\text{negative}} = 3.63$). Thus the greater perceived persuasiveness of happy subjects' counterattitudinal essays seemed to go along with lower emotionality of these messages. In addition, an interaction of topic and position was found. Proattitudinal messages on school age were perceived as more emotional ($M = 4.10$) than counterattitudinal messages on school age ($M = 3.26$), whereas proattitudinal messages on TV were rated as less emotional ($M = 3.30$) than counterattitudinal messages on TV ($M = 3.71$), $F(1, 79) = 9.53$, $p < .01$, $\eta = .33$. No other effects emerged, all $ps > .30$.

Additional correlational analyses showed that judgments of persuasiveness were negatively associated with emotionality, $r(38) = -.30$, $p < .10$. This negative correlation was significant for the counterattitudinal essay conditions, $r(18) = -.53$, $p < .05$, but not for the proattitudinal essay conditions, $r(18) = -.26$, n.s.

We assumed that the number of statements using the first or second person would indicate the degree to which subjects expressed the assigned perspective as their own and directly addressed a reader, and that this style of presentation might be perceived as persuasive. A significant interaction of mood and position indicated that, somewhat surprisingly, happy subjects used this strategy to a lesser degree ($M = 0.57$) than did sad subjects ($M = 1.68$) when they produced counterattitudinal essays, whereas the reverse pattern was obtained for proattitudinal essays ($M_{\text{positive}} = 1.72$, $M_{\text{negative}} = 0.71$), $F(1, 79) = 10.14$, $p < .01$, $\eta = .34$. In addition, a significant interaction of topic and position emerged, indicating that first- and second-person

Table 4
Means of Postmessage Attitudes as a Function of Mood, Topic, and Assigned Position

Mood	Message topic and position			
	School		TV channels	
	Proattitudinal	Counterattitudinal	Proattitudinal	Counterattitudinal
Positive	-1.60	-2.09	1.64	2.09
Negative	-1.55	-2.82	-0.09*	0.91
Baseline ^a	School topic		TV topic	
<i>M</i>	-2.13		1.71	
<i>n</i>	44		43	

Note. Attitudes were measured on a scale ranging from -4 (strongly opposed to reducing school age/public TV) to +4 (strongly in favor of reducing school age/public TV). Number per cell is 10 to 11.

a. Baseline is the attitude mean of those subjects who did not write about the topic.

*Different from the baseline at $p < .05$.

statements were used more often in proattitudinal messages about school age and counterattitudinal messages about public television ($M = 1.14$) than in counterattitudinal messages about school age and proattitudinal messages about public television ($M = 0.71$), $F(1, 79) = 7.75, p < .01, \eta = .30$. No other effects were found, all $ps > .12$.⁶

Did Message Production Lead to Attitude Change?

Finally, to detect potential threats to validity due to cognitive dissonance, we examined whether subjects' own attitudes changed as a result of message production. To do so, we compared the mean in each condition to the baseline measure obtained from those subjects who had not written about this topic.⁷ As can be seen in Table 4, subjects' attitudes remained largely unchanged and were overall in favor of public TV and opposed to reducing school age. Significant attitude change occurred in only one condition: Subjects in a negative mood, who had written a proattitudinal essay on the public TV channels, expressed an attitude that was more moderate than the baseline, that is, they showed evidence of a boomerang effect. Results do not parallel the findings on judgments of persuasiveness; that is, no self-persuasion effect was observed in those conditions that yielded high persuasiveness ratings. In addition, correlation analyses showed that external ratings of persuasiveness were positively associated with subjects' attitudes in the proattitudinal conditions, $r(18) = .57, p < .01$, but not in the counterattitudinal conditions, $r(18) = .31, n.s.$ (Note that in these latter conditions a negative association would indicate that message-based self-persuasion had occurred.)

Discussion

The results provide first evidence for an influence of mood on the perceived persuasiveness of arguments produced. As predicted, people in a positive mood generated messages that were judged to be more persuasive than those generated by people in a negative mood when their task was to favor a counterattitudinal position. Within the counterattitudinal message conditions, this result replicated across two different topics and is based on convergent evidence from subjects' own ratings and the judgments of independent message recipients.

The data are less consistent for the case of proattitudinal messages. Subjects who were in a positive mood while writing evaluated their own proattitudinal essays as more persuasive than did subjects who were in a negative mood while writing. Persuasiveness ratings of independent judges, however, did not differentiate between the proattitudinal essays of happy and sad subjects. Again, this pattern holds independent of topic. Furthermore, correlational analysis revealed that the external ratings of persuasiveness were only moderately correlated with the subjects' own ratings. At least two explanations might account for these divergent patterns.

On the one hand, it might be argued that subjects' own ratings of persuasiveness do not reflect true differences in the quality of argumentation. In answering the persuasiveness question, subjects may have asked themselves, "How do I feel about it?" using their current mood as a heuristic cue to derive a judgment (Schwarz, 1987; Schwarz & Clore, 1983, 1988). This implies that subjects' own ratings are a less valid indicator of persuasiveness than are external judgments. However, it is likely that induced differences in current mood had dissipated in the course of writing the target essay (Abele, 1990).

On the other hand, independent judges were from the same population as subjects and thus held similar attitudes toward the essays' topics. Therefore, the proattitudinal messages were congruent with the judges' expectations and own beliefs and thus might not have motivated systematic processing of message content. The counterattitudinal messages, however, were highly incongruent with the judges' expectations and thus may have instigated thorough processing of even subtle differences in message content or style (see Chaiken, Liberman, & Eagly, 1989, pp. 221-222, for a related argument). Because the judges' prior attitudes were neither controlled nor manipulated, this possibility cannot be ruled out. It should be taken into account in future studies.

Whereas the convergent evidence from self-ratings and others' ratings suggests that the mood effect on perceived persuasiveness of counterattitudinal arguments is reliable, it is still unclear from the present data how this effect is mediated. Some interesting suggestions, however, may be derived from the results. Some of the expected mediating variables were in fact independent of subjects' mood. The number of arguments generated was equal across mood conditions; more important, the hypothesis that positive mood would facilitate the production of original or novel arguments was not confirmed. However, the low grand mean of subjects' own originality ratings ($M = -0.57$ on a scale ranging from -4 to $+4$) seems to indicate that subjects did not perceive much room for improvisation and creativity. Similarly, the expert judges reported that the rating of originality was the most difficult one, which is reflected in this variable's very low interjudge reliability. It is conceivable that originality might be less difficult to assess and that mood-dependent differences in originality would be detected, if more unusual and interesting topics were used.

Although no evidence for the mediational role of originality was found, two other variables yielded a pattern of results parallel to that of perceived persuasiveness. Happy subjects' counterattitudinal messages contained fewer statements in the first and second person and were rated by experts as less emotional than sad subjects' counterattitudinal messages. To the extent that our student judges also perceived happy subjects' essays as less emotional, they may have used this as a criterion to judge persuasiveness. Given the moderately involving public policy topics used in this study, rational rather than emotional messages might be seen as more appropriate to discuss the issues, and thus as more persuasive. Similarly, using a more objective language and stating arguments in the third person might be perceived as a more suitable persuasion strategy when dealing with topics of this kind. Had we employed more personally involving themes, perhaps an emotional and self-referential strategy might have been perceived as more persuasive.

These conjectures may give a plausible account of the observed connection between emotionality, use of first- or second-person statements, and judgments of persuasiveness, but they do not explain *why* positive affect induced a more rational and objective style in writing counterattitudinal messages, whereas the reverse held in writing proattitudinal messages. Moreover, they cannot account for the obvious lack of a connection between objective, rational language and perceived persuasiveness for proattitudinal essays. Clearly, further research is needed to corroborate the present findings and to reach more definitive conclusions about the effects of affective states on

message production. For example, instead of asking subjects to write counterattitudinal messages, one might use topics that are novel or highly unfamiliar, so that the creative aspect of the task would be further emphasized.

Another issue that might be addressed in future studies is possible limitations on the kind of mood induction employed. As noted in the Results section, the magnitude of the mood difference we obtained was moderate, which is typical for the procedure of asking subjects to recall affectively toned experiences. Given that the experimental task in the present study, writing essays, took considerably more time than most experimental tasks used in other research on mood effects, it seems desirable that stronger mood inductions be used. For instance, giving subjects false feedback about their performance in achievement tests has proven to produce rather strong mood effects (e.g., Bohner et al., 1988) and could be used as an alternative induction technique. Finally, rather than focusing on perceived persuasiveness, it would be interesting to investigate how the communicator's affective state is related to actual attitude change in message recipients. Taking this argument one step further, one might explore how the affective state of message recipient and message source interact in the persuasion process.

In summary, the present study extends previous research on mood and persuasion by demonstrating that affective states not only may influence recipients' processing of a persuasive message but also may influence the generation of persuasive messages. The observed impact of sources' mood, however, depended on whether the message was pro- or counterattitudinal, and mood-induced differences in message characteristics were observed only on some of the assessed features. Nevertheless, these findings suggest that the interplay of characteristics of the communicative task and communicators' affective states is likely to provide a fruitful avenue for future research. For the time being, we note that previous findings suggested that a message *recipient's* good mood may interfere with a systematic processing of message content (e.g., Bless et al., 1990; Worth & Mackie, 1987), whereas the present findings suggest that a message *source's* good mood may lead to enhanced persuasiveness of the message. Thus, although it may not always be the best persuasion strategy to put the audience in a good mood, being in a good mood oneself when trying to persuade another might help.

Appendix
Means and Standard Deviations (in Parentheses) of Central Dependent Variables, Broken Down by Experimental Condition

Dependent variable	Experimental condition										Bartlett-Box-test ^a F
	Positive mood					Negative mood					
	School topic		TV topic		Counter ^f	School topic		TV topic		Counter	
	Pro ^b	Counter ^c	Pro	Counter		Pro	Counter	Pro	Counter		
Persuasiveness (subjects' ratings)	1.20 (1.48)	2.09 (1.58)	1.09 (2.59)	0.36 (1.43)	0.18 (2.52)	-0.09 (2.63)	-0.27 (2.69)	-0.55 (1.97)			1.33
Persuasiveness ^d (judges' ratings)	6.64 (0.56)	5.89 (1.35)	6.01 (2.27)	6.28 (1.63)	5.94 (1.80)	4.01 (0.82)	6.37 (1.92)	4.08 (1.20)			1.26
Originality (subjects' ratings)	-0.50 (2.12)	-0.09 (2.02)	-0.36 (2.29)	-1.36 (2.66)	0.36 (1.91)	-0.36 (1.29)	-1.09 (2.88)	-1.18 (1.94)			1.04
Originality (experts' ratings)	3.83 (0.69)	3.76 (0.78)	3.82 (0.96)	3.85 (0.71)	3.61 (1.06)	3.61 (0.53)	3.97 (0.62)	3.64 (0.80)			0.96
Relative infrequency of arguments	2.37 (0.85)	2.27 (1.23)	2.12 (1.26)	2.13 (1.11)	1.72 (0.59)	2.75 (1.20)	2.73 (1.18)	2.24 (1.51)			1.32
First- and second-person statements	2.90 (2.07)	0.50 (0.89)	0.64 (1.32)	0.64 (0.95)	1.09 (1.22)	1.36 (2.53)	0.32 (0.72)	2.00 (2.06)			3.78*
Emotionality (experts' ratings)	4.33 (0.72)	3.03 (0.74)	3.76 (1.06)	3.36 (0.82)	3.88 (1.08)	3.48 (0.90)	2.85 (0.89)	4.06 (1.27)			0.75
Attitude toward assigned topic	-1.60 (3.20)	-2.09 (1.81)	1.64 (2.66)	2.09 (2.47)	-1.55 (2.38)	-2.82 (1.33)	-0.09 (2.55)	0.91 (2.02)			1.21

Note. The number of subjects was 11 for all conditions except positive mood/school topic/proattitudinal, which included 10 subjects.

a. Testing homogeneity of variances.

b. Pro = proattitudinal position.

c. Counter = counterattitudinal position.

d. Number of cases per cell = 5 for this dependent variable.

* $p < .001$.

Notes

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2. Throughout the manuscript, we will use the terms *mood*, *affect*, and *affective state* interchangeably.

3. The assumption of homoscedasticity was violated for this variable (Bartlett-Box $F = 7.09$, $p < .001$). This could not be remedied by appropriate transformations of the raw data. However, a nonparametric median test led to identical conclusions, yielding an interaction effect of topic and position, $\chi^2(1) = 75.41$, $p < .0001$, $\phi = .93$.

4. For these two variables, the assumption of homoscedasticity was violated (Bartlett-Box $F = 9.58$ and 14.52 , both $ps < .001$, for number of positive and negative statements, respectively). This could not be remedied by appropriate transformations of the raw data. However, a nonparametric median test led to identical conclusions, yielding interaction effects of topic and position, $\chi^2(1) = 53.32$, $p < .0001$, $\phi = .78$, and $\chi^2(1) = 51.82$, $p < .001$, $\phi = .77$, for number of positive and negative statements, respectively.

5. The assumption of homoscedasticity was violated for proportions of favorable and opposing arguments (Bartlett-Box $F = 6.57$ and 10.23 , respectively, both $ps < .001$). This could not be remedied by appropriate transformations of the raw data. However, a nonparametric median test led to identical conclusions, yielding interaction effects of topic and position, $\chi^2(1) = 71.78$, $p < .0001$, $\phi = .91$, and $\chi^2(1) = 61.25$, $p < .001$, $\phi = .84$, for proportions of favorable and opposing arguments, respectively.

6. Because the assumption of homoscedasticity was violated for the number of first- and second-person statements (see Appendix), a logarithmic transformation (\ln) was performed on this variable. The resulting transformed variable yielded a Bartlett-Box $F = 1.05$, $p = .40$. Analysis of variance was repeated with the transformed variable and led to identical conclusions as the analysis of the untransformed data: Interaction of mood and position, $F(1, 79) = 8.31$, $p < .006$, $\eta = .31$; interaction of topic and position, $F(1, 79) = 10.67$, $p < .003$, $\eta = .34$; all other $ps > .10$.

7. Because subjects reported their attitude to the nonassigned topic at the end of the experiment, we first computed an ANOVA on this variable to detect any potential effects of the experimental treatment. This analysis yielded no significant effects.

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