

tions came to view their group as having more ability than the outgroup. This perception would make the outgroup an easy target on which to blame the failure in the combined effort. Such a superior-inferior bias in perception is less likely to occur in the cooperative or individualistic conditions since there is little need to make intergroup comparisons in these conditions. Whatever the particular dynamics, the present study demonstrated that simple cooperation will not necessarily increase intergroup attraction between groups who have previously competed.

REFERENCES

- Aronson, E. & Mills, J. M. The effect of severity of initiation on liking for a group. *Journal of Abnormal and Social Psychology*, 1959, **59**, 177-181.
- Blake, R. R. & Mouton, J. S. Reactions to intergroup competition under win-lose conditions. *Management Science*, 1961, **1**, 2-9.
- Byrne, D. *The attraction paradigm*. New York: Academic Press, 1971.
- Deutsch, M. *The resolution of conflict*. New Haven: Yale University Press, 1973.
- Dollard, J., Doob, L., Miller, N., Mowrer, O. H., & Sears, R. *Frustration and aggression*. New Haven: Yale University Press, 1939.
- Festinger, L. *A theory of cognitive dissonance*. Stanford: Stanford University Press, 1957.
- Filley, A. C. *Interpersonal conflict resolution*. Glenview, Ill.: Scott, Foresman & Co., 1971.
- Heider, F. *The psychology of interpersonal relations*. New York: Wiley, 1958.
- Lott, A. J. & Lott, B. E. A learning theory approach to interpersonal attitudes. In A. Greenwald, T. C. Brock & T. Ostrom (Eds.), *Psychological foundations of attitudes*. New York: Academic Press, 1968.
- Maier, N. R. F. *Psychology in industry*. Cambridge, Mass.: Riverside Press, 1955.
- Sherif, M., Harvey, O. J., White, B. J., Hood, W. R., & Sherif, C. *Intergroup conflict and cooperation: The Robber's Cave experiment*. Norman, Okla.: University of Oklahoma Press, 1961.
- Sherif, M. & Sherif, C. *Social psychology*. New York: Harper & Row, 1969. 3rd edition.
- Wilson, W. & Miller, N. Shifts in evaluation of participants following intergroup competition. *Journal of Abnormal and Social Psychology*, 1961, **63**, 428-431.
- Worchel, S., Lind, A., & Kaufman, K. Evaluations of group products as a function of expectations of group longevity, outcome of competition, and publicity of evaluation. *Journal of Personality and Social Psychology*, 1975, **31**, 1089-1097.

Category Accessibility and Impression Formation

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The present study examined the immediate and delayed effects of unobtrusive exposure to personality trait terms (e.g., "reckless," "persistent") on subjects' subsequent judgments and recollection of information about another person. Before reading a description of a stimulus person, subjects were unobtrusively exposed to either positive or negative trait terms that either could or could not be used to characterize this person. When the trait terms were applicable to the description of the stimulus person, subjects' characterizations and evaluations of the person reflected the denotative and evaluative aspects of the trait categories activated by the prior exposure to these terms. However, the absence of any effects for nonapplicable trait terms suggested that exposure to trait terms with positive or negative associations was not in itself sufficient to determine attributions and evaluations. Prior verbal exposure had little effect on reproduction of the descriptions. Moreover, no reliable difference in either evaluation or reproduction was found between subjects who overtly characterized the stimulus person and those who did not. Exposure to applicable trait terms had a greater delayed than immediate effect on subjects' evaluations of the stimulus person, suggesting that subjects may have discounted their categorizations of the stimulus person when making their immediate evaluations. The implications of individual and situational variation in the accessibility of different categories for judgments of self and others are considered.

The present study examined whether previous exposure to personality trait terms would affect subjects' subsequent characterizations and evaluations of a stimulus person. The results of a number of studies in the area of object and person perception suggest that an experimenter's verbal description of a stimulus prior to, or during, its presentation can affect how that stimulus is remembered and evaluated (e.g., Bach & Klein, 1957; Carmichael, Hogan, & Walter, 1932; Kelley, 1950; Thomas, DeCapito, Cronite, LaMonica, & Hoving, 1968). For example, Kelley (1950) found that students' ratings of a new instructor were more favorable when the instructor was described as a "warm" person by the experimenter prior to the instructor's arrival at class than when the instructor was described as a "cold" person. One interpretation of the results of these studies is that the

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experimenter's verbal description of the stimulus affects subjects' storage and retrieval of the stimulus information. However, the procedure of past studies, whereby the verbal description expresses the experimenter's personal judgment of the stimulus, suggests an alternative interpretation of the findings. In their public responses subjects may have simply conformed to the experimenter's judgment of the stimulus, without these responses necessarily reflecting the subjects' private judgment or recollection of the stimulus. One purpose of the present study is to distinguish between these alternative interpretations.

Bartlett (1932), Bruner (1957, 1958) and others have suggested that a fundamental process of person perception is to connect the input information with some stored category. The readiness with which a person classifies information in terms of a particular category is an indication of the *accessibility* of that category (cf. Bruner, 1957). Since prior activation of a *trait category* (i.e., stored conceptual information that distinguishes a particular quality of persons, such as particular behavior, appearance, intentions, etc.) increases its accessibility, exposure to the experimenter's *trait term* (i.e., the name of the trait category) should increase the likelihood that subjects will categorize the stimulus person in terms of the activated category.¹ The act of categorization may in turn affect how the stimulus information is processed.

The categorization that occurs upon presentation of information about a stimulus person can have both direct and indirect effects on later judgments of the person. The categorization can have the *indirect* (or mediating) effect of introducing bias and distortion into both the initial comprehension and storage of this information and its later retrieval and representation (cf. Bartlett, 1932; Neisser, 1967). Bruner (1958) gives an example of a average-sized Black sitting on a park bench during his lunch break who is categorized as "lazy" by an observer and is later remembered as a healthy, Black sprawling idly in the park doing nothing all day. With respect to the *direct* effects of categorization, the category activated by the categorization process is an integral part of the memory itself and, along with the stored details of the input information, forms a basis for judgments (Bartlett, 1932; Neisser, 1967). Information processing models suggest that a subject's judgment of a stimulus person will depend upon the sample of information about the person that the subject retrieves at the time his or her judgment is made (cf. Salancik, 1974; Wyer, 1973). The subject's previous categorization of a stimulus person could therefore affect his or her judgments of this person both indirectly, through its effect on the construction and reconstruction of the stimulus information, and directly through the category's own denotative and evaluative implications. One can thus interpret the effects of an experimenter's description of

¹ Throughout the paper double quotes (e.g., "warm") will be used for words and verb expressions, and single quotes (e.g., 'warm') will be used for stored conceptual categories.

stimulus on subjects' judgments and recollections of the stimulus as being mediated by the information processes described above. However, it is necessary to distinguish such effects from experimenter demand effects. To avoid the problem of experimenter demand effects in the present study, the relative accessibility of different trait categories was manipulated by exposing subjects to trait terms that were unobtrusively embedded in a previous "unrelated" task. Exposure to a trait term should activate its trait category meaning, and this meaning will then "prime," or further activate, closely associated trait categories. For example, exposure to the trait term "reckless" may activate the trait category 'reckless' which in turn may prime closely related coordinate categories, such as 'daredevil' or 'boorhardy,' as well as its superordinate category 'seeking adventure in a careless, thoughtless way.' Indirect evidence for this was obtained by Warren (1972). In this study, subjects were instructed to name as quickly as possible the color of ink in which a target word was written, while ignoring the word itself. Prior exposure to words closely related to the target word was expected to make it more difficult to ignore the target word itself (as priming would increase the target word's accessibility). As predicted, subjects' naming of a target word's ink color was slower when subjects had previously been exposed to words (e.g., "elm," "oak," "maple") related to the target word (e.g., "tree") rather than words unrelated to the target word. The major advantage of this procedure is that exposure to a trait term can be unobtrusive and yet be effective in activating a trait category. In fact, verbal exposure may affect subjects' responses to the stimulus even when subjects cannot recall any of the priming words. Tulving (1972) distinguishes semantic memory, which includes organized knowledge about words and their meanings and referents, from episodic memory, which includes information about temporally dated episodes or events. Thus prior exposure to "elm" could affect naming the ink color of "tree" because of the close association of the meanings of these words in semantic memory, even if the actual experience of perceiving "elm" is not itself available in episodic memory.

One would expect prior verbal exposure to have its greatest effect when the stimulus can be categorized in alternative ways with approximately equal likelihood and when the alternative categories themselves lack clearly defined boundaries. Social stimuli and the categories pertaining to them often have these characteristics (Kanouse, 1971; Neisser, 1967). Our first hypothesis was that subjects would categorize an ambiguous stimulus person using whichever category or categories had been previously activated or primed. We expected the effects of these categorizations to be reflected both in subjects' later characterizations and evaluations of the stimulus person, and in their reproduction of the input information. The characterization of a stimulus involves assigning an appropriate trait name to whatever stimulus information is retrieved or available at the time the

judgment is made, while its evaluation involves a judgment of the desirability of the kind of person to which the retrieved information makes reference (cf. Higgins & Rholes, 1976). We therefore predicted that subjects would evaluate the stimulus person more favorably when the trait terms to which they were exposed had favorable referents as opposed to unfavorable referents.

Three additional factors were considered in the present study, to clarify the interpretation of the anticipated results. First, the above hypothesis assumes that the effect of prior exposure to trait terms on subjects' subsequent evaluation of a stimulus person is mediated by categorization processes. However, exposure to trait terms with either positive or negative associations may simply evoke a positive or negative affective state in subjects that could have a direct effect on subjects' evaluation of the stimulus person, independent from this mediating categorization. To examine this issue, the effects of exposing subjects to trait terms that were applicable for characterizing the stimulus person were compared to the effects of exposing subjects to equally favorable or unfavorable trait terms that were not applicable for characterizing the stimulus person.

Second, the proposed formulation suggests that prior exposure to applicable trait terms should affect subjects' evaluation of the stimulus person whether or not subjects overtly characterize the stimulus person. However, the overt characterization of a stimulus person is a salient public behavior that may increase one's commitment to the evaluative implications of the characterization (cf. Janis, 1968). It is also an overt behavior that a person could use to infer his or her attitude toward the stimulus person (cf. Bem, 1972). These possibilities were explored.

Third, as we noted above, Bartlett (1932) and Neisser (1967) suggest that the categorization of input information tends to introduce bias into the reconstructive process through assimilation of the input information to the activated category. Bartlett (1932) also suggests that the delayed influence of the categorization on reproduction and judgment may be greater than the immediate influence, as the stored details of the input information are more rapidly forgotten than the categorization. In order to examine this issue for reproduction and evaluation, both immediate and delayed measures were obtained.

METHOD

Overview. As part of a "reading comprehension" study, 60 Princeton University undergraduates read a paragraph ambiguously describing a stimulus person. Prior to reading the paragraph, all subjects participated in an "unrelated" study on "perception" in which they were exposed to different personality trait terms. There were six different verbal exposure conditions that constituted the between-subject experimental conditions, with subjects being randomly assigned to each condition. Forty subjects were exposed to trait terms that were applicable for characterizing the stimulus person. Half of these subjects were later asked to characterize the stimulus person (the Applicable-Overt condition) while the

other half were not (the Applicable-No Overt condition). Twenty subjects were exposed to trait terms that were not applicable for characterizing the stimulus person, and all of these subjects were later asked to characterize the stimulus person (the Nonapplicable-Overt condition). In each of these three verbal exposure conditions, half of the subjects were exposed to trait terms with positive desirability and the other half were exposed to trait terms with negative desirability. As a within-subject variable, the dependent measures were given both immediately after subjects read the paragraph and again 10 to 14 days later. The dependent measures consisted of asking subjects to rate the overall desirability of the stimulus person, and to rewrite exactly, word for word, the paragraph about the stimulus person.

Construction of descriptive essay. Twenty bipolar adjective pairs were selected. The members of each pair referred to quite similar behavior but differed in desirability (e.g., neat/obssessive; assertive/aggressive; cautious/fearful; etc.). An ambiguous description was constructed to exemplify both members of each adjective pair. (Some examples are given below.) Each of these descriptions was given to 30 pilot subjects to determine whether it did, in fact, elicit both adjective poles with approximately equal frequency. Subjects were asked to characterize with a single word the kind of person portrayed by each description. The four most ambiguous descriptions exemplified the following trait category pairs (the percentage of subjects using a trait term from one or the other pole of each pair is given in parentheses): adventurous (43%/reckless (43%); self-confident (50%/conceited (40%); independent (49%/aloof (43%); persistent (53%/stubborn (43%). These four descriptions were then combined into a single paragraph as follows (the trait category pair for each description is given in parentheses):

"Donald spent a great amount of his time in search of what he liked to call excitement. He had already climbed Mt. McKinley, shot the Colorado rapids in a kayak, driven in a demolition derby, and piloted a jet-powered boat—without knowing very much about boats. He had risked injury, and even death, a number of times. Now he was in search of new excitement. He was thinking, perhaps, he would do some skydiving or maybe cross the Atlantic in a sailboat (adventurous/reckless). By the way he acted one could readily guess that Donald was well aware of his ability to do many things well (self-confident/conceited). Other than business engagements, Donald's contacts with people were rather limited. He felt he didn't really need to rely on anyone (independent/aloof). Once Donald made up his mind to do something it was as good as done no matter how long it might take or how difficult the going might be. Only rarely did he change his mind even when it might well have been better if he had persistent/stubborn."

Procedure. Each subject was asked to participate in two studies. Subjects were told the purpose of the first study was to examine the effects of information processing on perception. Subjects were shown a series of 10 slides containing different words (e.g., "tree," "yellow," "sky") on different colored backgrounds and were told to name the color of the background as quickly as possible. Before each slide, subjects auditorily received a "memory" word that they had to repeat immediately after naming the background color. This meant that they had to retain each "memory" word for 8–10 seconds. The 10 memory words included six object-nouns (e.g., "furniture," "corner," etc.) and four personality trait terms. The four trait terms always occupied the 3rd, 5th, 7th, and 8th positions in the series. The experimental manipulation of category accessibility involved varying the set of four trait terms for the different conditions. The trait terms used in each condition were as follows:

- Applicable, positive:* "adventurous," "self-confident," "independent," "persistent."
- Applicable, negative:* "reckless," "conceited," "aloof," "stubborn."
- Nonapplicable, positive:* "obedient," "neat," "satirical," "grateful."
- Nonapplicable, negative:* "disrespectful," "listless," "clumsy," "sly."

The mean likability of the four sets of traits, based upon norms compiled by Anderson (1968), were 416, 149, 418, and 152, respectively, along a scale from 0 to 600. The selection of the

Nonapplicable trait terms was made on an intuitive basis. However, the validity of the selection was indicated by the fact that none of the 30 pilot subjects used any of the Nonapplicable trait terms to characterize the descriptions.

Following the "perception" study, which took about five minutes, subjects were given the "reading comprehension" study. They were given the paragraph about "Donald" described above and were told to familiarize themselves with it because later they would have to answer questions about it. It took subjects about two minutes to read the paragraph.

After subjects read the paragraph, they were given a questionnaire. There were two kinds of questionnaires. On the first page of one questionnaire, subjects were asked to characterize each of the four descriptions of Donald (e.g., "Considering only Donald's attitude toward contacts with other people, how might one characterize, with a single word, this aspect of his personality?"). Half the subjects in the Applicable Positive and Applicable Negative conditions, and all the subjects in the Nonapplicable conditions, were given a questionnaire containing this front page. The presence or absence of this question constituted the manipulation of *Overt*, as opposed to *No Overt*, characterization. The remaining three pages of each questionnaire were the same for all subjects. The first of these contained eight factual questions about the paragraph (e.g., "In what manner was Donald thinking he might cross the Atlantic?"). This reading comprehension test was included to maintain the credibility of the task. The next page asked subjects to take into account all the information contained in the paragraph and then to rate how desirable they considered Donald to be on a 10-point scale ranging from extremely undesirable to extremely desirable, with no neutral point. (The scale is described in more detail below.) The final page of both questionnaires asked subjects to rewrite exactly, word for word, the paragraph about Donald.

All subjects returned 10 to 14 days later to participate in "another reading comprehension study." Before beginning the "new" study, subjects were asked to fill out a questionnaire concerning the previous study which contained both the desirability and reproduction measures.

The desirability scales in the first and second sessions were identical 10-point scales except that different numbers were assigned to minimize any attempt to simply repeat one's previous response. One scale ranged from -50 (extremely undesirable) to +50 (extremely desirable), whereas the other scale ranged from +10 (extremely desirable) to -10 (extremely undesirable).² The order of these scales across the two sessions was counterbalanced, so that an equal number of subjects in each condition used each type of scale in each session. *Prior* analysis, the scores on each scale were transformed to their equivalent scores on a standard 10-point scale ranging from +5 to -5.

Upon completion of the delayed questionnaire, subjects were questioned about the study. No subject guessed the true purpose of the study nor reported being suspicious. In order to check further on possible demand effects induced by the "perception" task, nine subjects in the Applicable-Overt condition were asked at the end of the first session to recall all the "memory" words. The mean percentage recall for the trait "memory" words (53%) was actually slightly less than that for the object-noun "memory" words (56%). These nine subjects were then told that we wished to know whether *anything* about the "perception" study interfered with or affected their behavior in the "reading comprehension" study, and was still easy for us to change our procedure to avoid such problems. Only one subject even noticed that some of the "memory" words coincided with his characterization of Donald, and even this subject did not suspect the reason for this relation. (This subject's data was excluded from the subsequent analysis and another subject was added to maintain 10 subjects in the

² As there was no zero point, this scale did not consist of equal intervals throughout. This is important to point out that all comparisons which were significant by parametric analysis were also significant by nonparametric analysis (which does not involve an equal interval assumption).

TABLE 1

FREQUENCY OF SUBJECTS PRODUCING DIFFERENT TYPES OF OVERT CHARACTERIZATION AS A FUNCTION OF VERBAL EXPOSURE CONDITION

Types of overt characterization	Applicable		Nonapplicable	
	Positive	Negative	Positive	Negative
Positive	7	1	2	5
Negative	1	7	5	3
Mixed	2	2	3	2

condition.)³ Thus the verbal exposure procedure did not make the trait words themselves particularly salient or raise any suspicions about the study.

RESULTS

Effects of Verbal Exposure on Overt Attributions

Our first prediction was that if a stimulus person could be categorized by different traits with approximately equal likelihood, subjects would characterize this person with whichever of the categories had been previously activated. To test this hypothesis, we considered only those overt characterizations that were applicable. There was almost perfect agreement between two "blind" and independent judges as to whether or not a characterization was applicable. About 95% of subjects' characterizations were applicable, and the percentage of applicable characterizations was similar for the Applicable and Nonapplicable conditions (96 vs. 94%, respectively). Subjects were divided into the following types depending upon how they had applicably characterized the four descriptions of Donald: (1) with a majority of positive characterizations (positive); (2) with a majority of negative characterizations (negative); and (3) with an equal number of positive and negative characterizations (mixed). The number of subjects who produced different types of characterization is shown in Table 1 as a function of their verbal exposure condition. As predicted, more subjects were positive than negative characterizers in the Applicable-Positive condition, whereas fewer subjects were positive than negative characterizers in the Applicable-Negative condition. This difference in the number of positive and negative characterizers within each condition was significant, Fisher Exact Test, $p < .02$ two-tailed. In

³ A comparison of subjects in the Applicable-Overt condition who did (8) or did not (12) participate in this recall task showed no effect on subjects' desirability and reproduction responses in the second session as a function of participation.

TABLE 2

MEAN IMMEDIATE, DELAYED, AND CHANGE DESIRABILITY RATINGS FOR EACH VERBAL EXPOSURE CONDITION

	Applicable				Nonapplicable	
	Overt characterization		No overt characterization		Overt characterization	
	Positive	Negative	Positive	Negative	Positive	Negative
Immediate	0.0	0.2	1.6	0.4	0.3	0.1
Delayed	0.3	-1.4	1.6	-0.1	0.2	-0.2
Change	0.3	-1.6	0.0	-0.5	-0.1	-0.3

Note. Scores could range from +5 (extremely desirable) to -5 (extremely undesirable).

direct contrast, there was, if anything, a nonsignificant tendency in the opposite direction for subjects in the Nonapplicable condition. Thus, as predicted, the desirability of activated categories was not sufficient alone to affect subjects' characterizations of the stimulus person. In fact, the slight reversal in the Nonapplicable condition could be due to some of the activated categories being denotatively inconsistent with a particular description (e.g., 'listless' with respect to adventurous/reckless).

The above effect of applicable verbal exposure on characterizations was not simply a lexical choice phenomenon, as only 45% of the trait terms subjects used to characterize the stimulus person were those used in the manipulation. The remaining 55% of the trait terms subjects used were denotative and evaluative synonyms (e.g., "loner" instead of "aloof", "self-centered" instead of "conceited"; "daring" instead of "adventurous").⁴ Furthermore, a reanalysis of the characterization data excluding those trait terms used in the manipulation revealed essentially the same pattern shown in Table 1—a significant effect in the predicted direction in the Applicable condition ($p < .02$, two-tailed), and a slight reversal in the Nonapplicable condition. Thus, as hypothesized, the verbal exposure manipulation activated trait categories and not just trait terms.

Effects of Verbal Exposure on Desirability Ratings

We predicted that if a stimulus person could be categorized by different traits with approximately equal likelihood, subjects would evaluate the person in a manner consistent with the desirability of whichever categories had been previously activated. Table 2 presents the mean desirability

⁴ In contrast, in the memory check for the "memory" words described above, 100% of the words recalled were those used in the manipulation. This exemplifies the need to distinguish episodic from semantic memory (Tulving, 1972).

ratings of Donald for the immediate and delayed measures, and the change in ratings between these measures, for each condition. In the Applicable condition, an overall Valence (Positive vs. Negative verbal exposure) \times Characterization (Overt vs. No Overt characterization) \times Time (Immediate vs. Delayed measure) analysis of variance yielded a significant Valence \times Time interaction, $F(1,36) = 4.04$, $p < .05$, but no other significant effects. The significant Valence \times Time interaction reflects the fact that the desirability ratings became more negative over time in the Applicable-Negative condition (mean change of -1.1) than in the Applicable-Positive condition (mean change of +0.2).

A further analysis of the above Valence \times Time interaction indicated that the difference in evaluation under positive and negative conditions was small and nonsignificant on the immediate measure ($M = .8$ and $.3$ under positive and negative conditions, respectively), $t(38) = 0.72$, $p > .25$ two-tailed; but was substantial and significant on the delayed measure ($M = 1.0$ and $-.8$ under positive and negative conditions, respectively), $t(38) = 2.06$, $p < .05$ two-tailed.⁵ This delayed difference in evaluations was also evident in the numbers of subjects who rated Donald as desirable or undesirable under the positive and negative verbal exposure conditions. Donald was rated as desirable by more subjects in the Positive than in the Negative condition (13 vs. 6 subjects), and as undesirable by more subjects in the Negative than in the Positive condition (14 vs. 7 subjects), $t(40) = 3.61$, $p < .05$ one-tailed. Thus on the delayed desirability measure, 27 out of 40 subjects in the Applicable condition evaluated the stimulus person in a manner consistent with the evaluative tone of the trait terms to which they were exposed. In the Nonapplicable condition there was, if anything, an opposite tendency on the delayed measure—only nine out of 20 subjects evaluated the stimulus person in a manner consistent with the evaluative tone of the trait terms to which they were exposed. This difference between the Applicable and Nonapplicable conditions suggests that for verbal exposure to affect the evaluation of a stimulus person, it is critical that the trait terms involved be applicable to the stimulus person.

Effects of Verbal Exposure on Reproduction

The paragraph that subjects had to reproduce contained four separate ambiguous descriptions of the target person. Each description could be either reproduced in its original ambiguous form, distorted toward the positive or negative evaluative member of its bipolar pair, or deleted

⁵ There was also a nonsignificant tendency on the delayed measure for the desirability ratings to be more positive in the Applicable-No Overt condition than in the Applicable-Overt condition. The difference appears greater in Table 2 because the difference in the means (-0.6 vs. +0.8, respectively) is greater than the difference in the medians (0.0 vs. +0.4, respectively).

entirely. Each reproduction was coded for the number of descriptions that remained ambiguous, became either positive or negative, or were deleted, with these four "scores" being mutually exclusive. Two independent and "blind" coders scored the reproductions of 15 randomly chosen subjects. Excluding deletions (for which there was 100% agreement), interrater agreement was over 85%. In cases of disagreement, a third judge chose between the alternatives. The reproductions were also coded for additional descriptions reflecting traits not included in the original paragraph; however, less than 3% of the reproductions included such information.

We predicted that if a stimulus person could be categorized by differed traits with approximately equal likelihood, subjects would distort their reproduction of the stimulus information in a manner consistent with whichever of the categories had been previously activated. For each reproduction, the number of negative distortions was subtracted from the number of positive distortions. Except for a weak tendency in the predicted direction for immediate reproductions in the Applicable condition (mean difference score of .8 for Applicable-Positive vs. .2 for Applicable-Negative), there was no support for the prediction in any condition at either immediate or delayed reproductions.

Separate 3(Applicable-Overt vs. Applicable-No Overt vs. Nonapplicable-Overt) \times 2(Positive vs. Negative) \times 2(Immediate vs. Delayed) analyses of variance were then performed for the ambiguous and deleted scores. Only the main effect of time was reliable. Specifically, more descriptions were deleted in the delayed than in the immediate reproductions (23 vs. 14%), $F(1,48) = 19.17, p < .001$; and more descriptions remained ambiguous in the immediate than the delayed reproductions (47 compared to 31%), $F(1,48) = 23.88, p < .001$. A measure of the polarization for each reproduction that was not confounded by the amount of deletion was obtained by summing the positive and negative descriptions reproduced and then dividing this sum by the total number of positive, negative, and ambiguous descriptions. This ratio was greater for delayed (.70) than immediate reproductions (.53), $F(1,54) = 13.68, p < .001$. This result indicates that the descriptions were reproduced in a more polarized form over time.

DISCUSSION AND CONCLUSIONS

The results of the present study may be summarized as follows: (1) In characterizing the stimulus person, subjects used trait categories that had been previously activated or primed through unobtrusive exposure to trait terms, but only when the trait categories were applicable to the stimulus person. (2) Subjects' delayed evaluations of the stimulus person were consistent with the evaluative implications of those trait categories that had been previously activated or primed, but only when the trait categories

were applicable to the stimulus person. (3) The effect of prior verbal exposure on subjects' evaluations did not significantly depend upon whether subjects had overtly characterized the stimulus person. (4) The delayed effect of prior verbal exposure on subjects' evaluations was greater than the immediate effect. (5) Prior verbal exposure had no significant effect on subjects' reproductions of the information about the stimulus person. (6) Subjects' reproductions of the information about the stimulus person became more polarized over time.

As discussed in the introduction, a person's previous categorization of a stimulus person can affect his or her later judgments of the stimulus person either indirectly, through its effect on the construction and reconstruction of the stimulus information, and/or directly, through the category's own denotative and evaluative implications. The absence of a significant reproduction effect in the present study suggests that the characterization and evaluation effects found were due mainly to a direct effect of categorization on judgment. However, in a recent study of audience opinion effects on communicators' message summaries of stimulus information about another person, we did find a significant relation among subjects' categorizations, evaluations, and reproductions of the stimulus information (Higgins & Rholes, Note 2). The major difference between the two studies was that subjects in the present study probably felt they should memorize the stimulus information because it was part of a "reading comprehension" test, whereas in the other study there was no reason for subjects to try to memorize the stimulus information. Spiro (1975) has found that reconstructive errors in reproduction do not occur when subjects are instructed to memorize the input information, but will occur otherwise. Reproductive errors consistent with the activated categories might have occurred in the present study if subjects had been given different instructions for the stimulus information (e.g., to summarize the information for another person).

There was no evidence in the present study that the stimulus information became increasingly distorted over time toward the trait categories activated by the prior verbal exposure. Therefore, the fact that prior verbal exposure had an increasing effect on evaluation over time cannot be explained in terms of such indirect effects of category activation. However, it can be explained in terms of changes in the direct effects of category activation. It may be that an awareness that one's categorizations are biased accounts of the stimulus information can function as a "discounting cue" (Hovland, Lumsdaine, & Sheffield, 1949) that stimulates the direct impact of the categorizations. In the Applicable condition, any bias in categorizing the stimulus information is most likely to be noticed when the categorizations occur immediately prior to evaluation and are overtly communicated. In addition, any bias is most likely to be compensated for in subjects' evaluations when the

categorizations have a negative (i.e., prejudicial) bias. Both the results in Table 2 and some additional correlational evidence support this discounting interpretation. In the Applicable-Overt condition, a significant positive correlation was found between the positivity of subjects' overt characterizations (the number of positive characterizations minus the number of negative characterizations) and the positivity of their delayed evaluations of the stimulus person, $r = .46, p < .05$, two-tailed (Pearson Product Moment Correlation), but there was little correlation with their immediate evaluations of the stimulus person, $r = .13, p > .1$, two-tailed.

The delayed-action effect in the Applicable condition is particularly interesting given the general lack of evidence for "sleeper effects" in particular and delayed-action effects in general (cf. Gillig & Greenwald, 1974). In addition, the delayed-action effect in the Applicable-Overt condition indicates that subjects' evaluations of the stimulus person did not result simply from their desire to be consistent with their previous responses.

The effects of verbal exposure on subjects' characterizations found in the present study are consistent with previous findings that verbal exposure increases the accessibility of primed categories (cf. Posner & Warren, 1972; Forbach, Stanners, & Hochhaus, 1974). This increased accessibility can occur for several items simultaneously, and can last as long as ten minutes (cf. Forbach et al., 1974). The attribution results of the present study suggest that attributions are not determined solely by the behavioral, dispositional, and/or situational information about a stimulus person, or even one's attitude toward this person. At least in ambiguous situations, category accessibility can also determine how a stimulus person is characterized.

Given that category accessibility can affect how a person characterizes another person, it may also affect how a person characterizes his or her own behavior and internal processes. For example, Becker (1966) stated that because of the ambiguity of certain marihuana-produced sensations, a new user must learn from more experienced users to define his own experience as pleasurable. Exposure to generally positive labels may cause a new user to select positive rather than negative categories to characterize his or her own ambiguous sensations (e.g., 'warm' as opposed to 'hot'; 'exciting' as opposed to 'agitating'). Furthermore, category accessibility can be varied by nonverbal as well as by verbal means. Exposure to particular social behaviors (e.g., euphoric behavior of a stooge) or group compositions (e.g., the only male in an otherwise all-female group) can affect subjects' self-descriptions and attitude responses by increasing the accessibility of certain categories (cf. Schachter & Singer, 1962; Ruble & Higgins, 1976). There may even be individual differences in the relative accessibility of different categories. Sapir (1962)

and Nunnally (1965) have suggested that individual differences in word usage have a close relation to individual differences in personality characteristics and emotional state. This relation may be due in part to individual differences in the accessibility of different categories being related to individual differences in both word selection and the characterizations of self and others.

REFERENCES

- Anderson, N. H. Likableness ratings of 555 personality-trait words. *Journal of Personality and Social Psychology*, 1968, 9, 272-279.
- Bach, S., & Klein, G. S. Conscious effects of prolonged subliminal exposure of words. *American Psychologist*, 1957, 12, 397.
- Berkett, F. C. *Remembering*. London: Cambridge University Press, 1932.
- Becker, H. S. Becoming a marihuana user. In D. Solomon (Ed.), *The marihuana papers*. New York: Signet Books, 1966.
- Bem, D. J. Self-perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology*: Vol. 6. New York: Academic Press, 1972.
- Bower, J. S. On perceptual readiness. *Psychological Review*, 1957, 64, 123-152.
- Bower, J. S. (Eds.), *Readings in social psychology*. New York: Holt, Rinehart and Winston, 1958.
- Carmichael, L., Hogan, H. P., & Walter, A. A. An experimental study of the effect of language on the reproduction of visually perceived form. *Journal of Experimental Psychology*, 1932, 15, 72-86.
- Forbach, G. B., Stanners, R. F., & Hochhaus, L. Repetition and practice effects in a lexical decision task. *Memory and Cognition*, 1974, 2, 337-339.
- Gillig, P. M., & Greenwald, A. G. Is it time to lay the sleeper effect to rest? *Journal of Personality and Social Psychology*, 1974, 29, 132-139.
- Higgins, E. T., & Rholes, W. S. Impression formation and role fulfillment: A "holistic reference" approach. *Journal of Experimental Social Psychology*, 1976, 12, 422-435.
- Hershey, C. I., Lumsdaine, A. A., & Sheffield, F. D. *Experiments on mass communication*. Princeton: Princeton University Press, 1949.
- Jones, I. L. Attitude change via role playing. In R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, & P. H. Tannenbaum (Eds.), *Theories of cognitive consistency: A sourcebook*. Chicago: Rand McNally and Company, 1968.
- Kanouse, D. E. Language, labeling, and attribution. In E. E. Jones, D. E. Kanouse, H. H. Kelley, R. E. Nisbett, S. Valins, & B. Weiner (Eds.), *Attribution: Perceiving the causes of behavior*. Morristown, N. J.: General Learning Press, 1971.
- Kelley, H. H. The warm-cold variable in first impressions of persons. *Journal of Personality*, 1950, 18, 431-439.
- Miller, U. *Cognitive Psychology*. New York: Appleton-Century-Crofts, 1967.
- Nunnally, J. C. Individual differences in word usage. In S. Rosenberg (ed.), *Directions in Psycholinguistics*. New York: MacMillan, 1965.
- Posner, M. I., & Warren, R. E. Traces, concepts, and conscious constructions. In A. W. Melton & E. Martin (Eds.), *Coding processes in human memory*. Washington, D. C.: V. H. Winston & Sons, 1972.
- Ruble, D. N., & Higgins, E. T. Effects of group sex composition on self-presentation and sex-typing. *Journal of Social Issues*, 1976, 32, 125-132.
- Schachter, G. R. Inference of one's attitude from behavior recalled under linguistically manipulated cognitive sets. *Journal of Experimental Social Psychology*, 1974, 10, 415-427.

- Sapir, E. Speech as a personality trait. *American Journal of Sociology*, 1927, 32, 892-894.
- Schachter, S., & Singer, J. E. Cognitive, social and physiological determinants of emotion state. *Psychological Review*, 1962, 69, 379-399.
- Spiro, R. J. Inferential reconstruction in memory for connected discourse. Technical Report No. 2, Laboratory for Cognitive Studies in Education, University of Illinois, October 1975.
- Thomas, D. R., DeCapito Caronite, A., LaMonica, G. L., & Hoving, K. L. Medial generalization via stimulus labeling: A replication and extension. *Journal of Experimental Psychology*, 1968, 78, 531-533.
- Tulving, E. Episodic and semantic memory. In E. Tulving & W. Donaldson (Eds.), *Organization of memory*. New York: Academic Press, 1972.
- Warren, R. E. Stimulus encoding and memory. *Journal of Experimental Psychology*, 1960, 94, 90-100.
- Wyer, R. S., Jr. Category ratings as "subjective expected values": Implications for attitude formation and change. *Psychological Review*, 1973, 80, 446-467.

REFERENCE NOTES

1. Jones, Carl R. *An experiment on the effect of language on nonlinguistic behavior*. Senior Thesis, Princeton University, 1974.
2. Higgins, E. T., & Rholes, W. S. *Message production effects on impression formation*. Unpublished manuscript, Princeton University, 1976.

Affective Responses to the Emotions of a Protagonist

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This study investigated the merits of various theoretical rationales for predicting viewers' affective responses to the expressed emotions of a protagonist. A film depicting a child undergoing an emotion-inducing experience was produced in six versions and shown to elementary school children. The versions effected a factorial variation in (a) the type of behavior exhibited by the protagonist in the initial sequences (malevolent, neutral, benevolent) and (b) the emotion expressed by the protagonist in the final sequence (euphoria, dysphoria). When the protagonist behaved benevolently or neutrally, the affective responses of viewers were concordant with those of the protagonist, but when he behaved malevolently, viewers' affective responses were discordant with his. The latter finding was seen to be in conflict with predictions based strictly on empathy. The rationale that was considered to account best for the findings was based on the assumption that the observer's affective disposition mediates the tendency to respond concordantly or discordantly to another's emotions.

It is commonly believed that viewers' emotional responses play an important part in their reactions to entertaining communications. The most widely held notion of the nature of these responses seems to be that they are based on an *empathetic* process—that the viewer, as the result of

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