Attitude Processing Strategies

BARBARA LOKEN

University of Minnesota

Received January 9, 1983

Several models of memory-based attitude processing were examined in a laboratory experiment. After receiving stimulus information with implications for either one or both of two attitudes (toward a person and toward a behavior with respect to this person), subjects were asked to recall the information and to report their attitudes. Information was received under instructions to form only one of these two attitudes. Consistent with past research, information was subsequently better recalled when it had implications for the attitude being evaluated than when it did not. However, null effects of the instructional set on reported attitudes suggested that subjects relied on their memory-for-attitude (or additional implications) rather than on memory-for-facts. The present findings extend the generality of this conclusion to behavioral attitudes, large stimulus sets, and heterogeneous stimulus items. Low correlations between recalled stimuli and reported attitudes also supported a memory-for-attitude model. However, correlations between behavioral attitudes and recall of behavioral outcomes increased under certain conditions. Results are discussed in relation to recent findings in person perception research.

INTRODUCTION

The purpose for which people expect to use information often influences which aspects of it they later remember. A great deal of research in social and cognitive psychology supports this conclusion (e.g., Bower, 1970; Hamilton, Katz, & Leirer, 1980; Lingle, Geva, Ostrom, Leippe, & Baumgardner, 1979; Wyer & Gordon, 1982; Zadny & Gerard, 1974). However, the manner in which recalled information is used to form
subsequent judgments is unclear. Recently, several theoretical models have been postulated to account for the effects of information on subsequent “memory-based” judgments (e.g., Carlston, 1980; Ebbesen, 1980; Ostrom, Lingle, Pryor, & Geva, 1980; Wyer & Srull, 1980). These models have generated several interesting questions about the manner in which attitudes are formed. For example, remembered information used to form judgments may include not only features of the original stimulus material, but also previously formed inferences and impressions that have implications for the judgment. In some cases, judgments of a person or object may be made on the basis of the original stimulus material one can recall. In other cases, they may be made on the basis of the implications of an abstract representation of the person or object that one formed at the time the information was received. In still other instances, they may be based on both types of recalled information.

The present research examines further the informational bases of attitude judgments. In doing so, it investigates two attitudes that are frequently measured in attitude-behavior research: an attitude toward a person (a person attitude) and an attitude toward a behavior with respect to this person (a behavioral attitude). While our attitudes toward someone may influence our pattern of behaviors toward this person, they may not necessarily predict single behaviors (Fishbein & Ajzen, 1975). Rather, an attitude toward a behavior may be a stronger predictor of this behavior (Ajzen & Fishbein, 1977). It is an open question as to whether the processes underlying an evaluative impression of an individual differ from those that mediate an evaluation of a single behavior toward this person.

To examine these possibilities, the present experiment manipulates the relevance of stimulus information to each of these two attitudes and the nature of the instructional set (either to form one or the other of the two attitudes). At a later point in time, stimulus recall and attitudes toward the person and behavior are reported. Two areas of research in social psychology have implications for understanding which stimulus information will be used to form these two attitudes: (1) the effects of task instructions on subsequent memory for stimulus information, and (2) the relationship between recall of relevant stimuli and subsequent judgments. Each of these areas of research is discussed below.

Memory for Stimulus Information

Information is better remembered if it is relevant to or congruent with one’s objectives than if it is irrelevant or incongruent with one’s objectives (e.g., Bower, 1970; Cohen & Ebbesen, 1979; Lingle et al., 1979; Sulin & Dooling, 1974; Zadny & Gerard, 1974). This finding is generally explained in terms of the manner in which the different types of information are
organized. That is, attitude-relevant information may be organized around the attitude, and subsequently may be better remembered than information that cannot be so organized (e.g., Hamilton, et al., 1980; Lingle et al., 1979; Ostrom et al., 1980).

One implication of this finding is that when people are forming an evaluative person impression on the basis of a set of information, they should subsequently remember information better if it has implications for that impression than if it does not. Analogously, when people are evaluating a behavioral decision, they should attend primarily to items with implications for this decision, and therefore should remember them better than behavior-irrelevant items. For example, learning that a professor is "independent" may increase the favorableness of one's attitude toward this person, but may have little bearing on the desirability of taking a college course from this person. Conversely, learning that a college course fulfills a graduation requirement would have implications for one's attitude toward taking the course but not toward the person who teaches it.

*Relationship between Memory for Stimuli and Subsequent Judgments*

Although the purpose for which one expects to use information may influence one's recall of specific items, the impact of these recalled items per se on subsequent judgments is surprisingly unclear (cf. Taylor & Fiske, 1979). Recently, several models have been proposed to account for the effects of stimulus information on subsequent "memory-based" judgments. A "memory-for-facts" model (cf. Ostrom et al., 1980) proposes that recalled stimulus information will be used as a basis for attitudes. It seems reasonable to assume that this model would hold under certain conditions, but the nature of these conditions has not been circumscribed. Studies in persuasive communication have found that the recall of arguments in a persuasive message has little relation to changes made in the advocated direction, and that changes in recall over time are not related to the persistence of attitude change (e.g., Greenwald, 1968; Hovland & Weiss, 1951; Insko, Lind, & LaTour, 1976; Papageorgis, 1963; Petty & Cacioppo, 1979; Watts & McGuire, 1964). Studies of impression formation and attribution theory find little or no relation between judgments about a person (e.g., an evaluative impression, a causal attribution) and recall of stimulus information upon which the judgments are based (e.g., Anderson & Hubert, 1963; Dreben, Fiske, & Hastie, 1979; Fiske, Kenny, & Taylor, 1982; Fiske, Taylor, Etcoff, & Laufer, 1979).

Various explanations of low recall-judgment relations have been proposed. One possibility is that inferences generated from the stimulus information, rather than the stimuli themselves, influence judgments (e.g., Greenwald, 1968; Love & Greenwald, 1978; Petty & Cacioppo, 1981,
These inferences, judgments made at the time information was received, or other initial impressions, may be stored in memory separately from the original stimulus information (e.g., Carlston, 1980; Ostrom et al., 1979; Wyer & Srull, 1980). This possibility has been referred to as a "memory-for-judgment" model (cf. Ostrom et al., 1980). Clearly, the judgments made at the time information is received may be attitude judgments. Thus, a "memory-for-attitude" model would predict that people retrieve their previously formed attitudes and use them as bases for subsequent inferences reported later on.

Another possibility is that people retrieve and use stimulus information under some conditions and previously formed attitudes under other conditions. For example, one of the models proposed by Lingle and Ostrom (1979) in their research pertaining to judgments of occupational suitability is a "mixed model." According to this model, people should use their judgments of suitability for one occupation as bases for judgments of suitability of a second occupation when the two occupations are similar. However, they should retrieve the original stimulus information when the second occupation is dissimilar to the first. Thus, previously formed judgments are perhaps used as bases for subsequent ones only when they are relevant to them. In the present context, if people receive information for the purpose of forming an impression of a person, their later judgments of the person may be based upon this original impression, and judgments of the behavior may be based on the recall and review of the original material. Conversely, when originally forming a behavioral evaluation, subsequent judgments of the behavior may be based upon this evaluation whereas judgments of the person may be based on recall of the original stimulus information.

Finally, both recalled stimulus information and initial attitudes in combination may influence subsequent reported attitudes. Studies in persuasion (e.g., Greenwald, 1968) and impression formation (e.g., Asch, 1946; D’Andrade, 1965; Norman, 1963; Norman & Goldberg, 1966) suggest that stimulus information can have an impact on related beliefs that are not directly implied by the information. Thus, for example, these beliefs, plus beliefs directly implied by the stimulus information, may subsequently influence memory-based attitudes. More recently, researchers have argued that both recall of relevant stimulus facts and initial impressions may influence subsequent person impressions (e.g., Carlston, 1980: Lingle & Ostrom, 1979). For example, research by Lingle, Ostrom, and their associates (e.g., Lingle, Dukerich, & Ostrom, 1983; Lingle & Ostrom, 1979) suggests that subjects used both initial impressions and selectively retrieved stimulus facts in combination as bases for occupational judgments. Although much of this research implies that judgments are stored in memory separately from stimulus facts, Wyer, Srull, and Gordon (1984) argue otherwise.
They propose that a single integrated representation of a person may include previously formed judgments as well as original stimulus features.

METHOD

Overview

All subjects received a list of information items with instructions either to form an impression of a person or to make a behavioral decision with respect to a person. Some of these items described traits of a person, and other described outcomes of performing the behavior. Moreover, in some (dual-implication) conditions, each piece of information was relevant to forming both an attitude toward the person ($A_o$) and an attitude toward performing the behavior ($A_b$). In other (single-implication) conditions, trait information was relevant to forming an attitude toward the person but not the behavior, whereas outcome information was relevant to forming an attitude toward the behavior but not the person. Following a short delay, subjects were asked to recall the information they received and then to report both their attitude toward the person and their attitude toward performing the behavior.

The basic design of the study was therefore a $2^4$ factorial involving two levels each of (1) task instructions (impression set or behavioral set), (2) favorableness of trait information (positive or negative), (3) favorableness of outcome information (positive or negative), and (4) implications of trait and outcome information (dual or single). In addition, there were two stimulus replications, and each subject received information pertaining to only one of these.

Subjects

Subjects were 256 male and female introductory psychology students, who participated in the experiment to fulfill a course requirement. Subjects were randomly assigned to the 32 cells in the design, with 8 subjects per cell. Originally a larger number of subjects (288) participated, but subjects were randomly discarded to obtain an equal number in each cell.

Selection of Stimulus Materials and Pretest Measures

Materials were prepared for two stimulus replications. Each involved information about a fictitious target person (a male professor or a female job applicant) and a specific behavior (taking a college course from the professor or hiring the applicant as a corporate executive). To obtain normative data for each replication, pilot subjects who did not participate in the main experiment rated (1) the favorableness of alternative traits describing the two target persons, (2) the favorableness of alternative outcomes of performing the two behaviors with respect to these target persons, (3) the relevance of traits for forming person and behavioral attitudes, and (4) the relevance of outcomes for forming person and behavioral attitudes. Sample sizes for these ratings ranged from 15 to 35. Favorableness judgments were made along a 7-category scale from "extremely bad" to "extremely good," and relevance judgments along a 7-category scale from "relevant to not liking the person/not performing the behavior" to "relevant to liking the person/performing the behavior." Category judgments were assigned numerical values from $-3$ to $+3$, with higher values conveying greater favorableness or relevance. The midpoint of the relevance scale was labeled "irrelevant to liking the person/performing the behavior," such that a high absolute value on the relevance scales indicated greater degrees of relevance.

Based on these pilot ratings, four sets of four traits and four sets of four outcomes were selected for each stimulus replication, each set representing a different combination of favorableness (positive or negative) and implications for the behavior. Single-implication traits were selected to be more relevant to forming person than behavioral attitudes. Dual-implication traits were selected to be relevant to both attitudes. Analogously, single-
implication outcomes were selected to be more relevant to behavior than person attitudes, and dual-implication outcomes were selected to be relevant to both.¹

Finally, an additional set of eight neutral characteristics was selected for each replication in order to increase the list size. (An increase in list size was desirable to avoid ceiling effects in recall). Favorableness and relevance ratings for these items showed them to be neutral and relevant to neither attitude.

Stimulus Lists

Construction of stimulus lists. In the experimental task, each subject was shown a set of 16 stimulus items typed on a page. Four of these described the target person as possessing a trait, e.g., "Professor Dolan is interesting," four described outcomes of performing the behavior with respect to the person, e.g., "Taking a course from Professor Dolan would fulfill a degree requirement," and eight were neutral descriptions of the person, e.g., "Professor Dolan is about average height (5 ft 11 in.)." Stimuli were shown to all subjects in a single randomized order with two constraints. First, each successive set of four stimulus items contained information about one trait, one outcome, and two neutral characteristics. (This ensured that traits and outcomes were distributed throughout the stimulus list.) Second, the first and last items in each list were neutral items, and were the same under all conditions. Furthermore, the information contained in each list was presented to half the subjects in the reverse order. Sixteen stimulus lists were therefore compiled for each stimulus replication, two of which (one in forward order and one in reverse order) pertained to each of the eight combinations of trait favorableness, outcome favorableness, and stimulus implications. Sample stimulus lists are shown in Table 1.

Procedure

Upon arriving, subjects were told that the experiment concerned ways in which people make decisions and form opinions. Subjects then read to themselves one or two sets of task instructions. Impression-set subjects were told:

In everyday life, we often form impressions of how well we would like someone on the basis of a variety of different types of information . . . . we have compiled lists of information about several different persons. The information about each

¹ Three criteria were met in matching sets of trait and outcome stimuli. First, since different stimuli were used under single and dual implication conditions, it was necessary to ensure that the favorableness of stimuli was constant across conditions. This criterion was met. The mean favorableness of traits and outcomes in the stimulus sets did not vary significantly as a function of implications (for individual conditions \( .19 \leq | t(34) | \leq 1.59 \)). Second, single-implication stimuli were selected to be less relevant than dual-implication stimuli to forming one of the attitudes. Again, this criterion was met. Dual-implication traits were significantly more relevant than single-implication traits (\( M's = 1.85 \) vs \( .60 \)), and dual-implication outcomes were significantly more relevant to person attitudes than single-implication outcomes (\( 1.64 \) vs \( .40 \), \( t(28) = 3.05, p < .01 \)). Third, the relevance of each type of information (trait or outcome) to attitudes should vary as a function of implications. Consistent with this criterion, single-implication traits were more relevant than single-implication outcomes to person attitudes (\( 1.18 \) vs \( .40 \), \( t(42) = 2.66, p < .05 \)). Similarly, single-implication outcomes were more relevant than single-implication traits to performing the behavior (\( 1.25 \) vs \( .60 \), \( t(42) = 2.14, p < .05 \)). In contrast, dual-implication stimuli were relevant to both person attitudes (\( M's = 1.25 \) and \( 1.64 \) for traits and outcomes, respectively) and behavioral attitudes (\( M's = 1.85 \) and \( 1.58 \) for traits and outcomes).
TABLE 1
SAMPLE STIMULUS MATERIALS

Single implication, negative trait, positive outcome information
Professor John Dolan has blue eyes.
Taking Dolan's course fulfills a requirement needed for graduation.
Dolan is a 40-year-old male.
Dolan is unsophisticated.
Taking Dolan's course enables students to learn material important to their majors.
Dolan is medium height (5 ft 11 in.)
Dolan is restless.
Dolan weighs 183 lbs.
Dolan wears glasses for reading.
Dolan is clumsy.
Dolan's younger brother is studying computer programming.
Taking Dolan's course means meeting at a very convenient time of day.
Dolan is unhealthy.
Dolan has been married for 8 years.
Taking Dolan's course fulfills a prerequisite to a very good course.
Dolan lives in a house on Prospect Avenue.

Dual-implication, positive trait, negative outcome information
Professor John Dolan lives in a house on Prospect Avenue.
Taking Dolan's course is time-consuming.
Dolan has been married for 8 years.
Dolan is interesting.
Taking Dolan's course requires taking very difficult exams.
Dolan's younger brother is studying computer programming.
Dolan is helpful.
Dolan wears glasses for reading.
Dolan weighs 183 lbs.
Dolan is good-natured.
Dolan is medium height (5 ft 11 in.).
Taking Dolan's course is not enjoyable.
Dolan is clever.
Dolan is a 40-year-old male.
Taking Dolan's course means attending complicated lectures.
Dolan has blue eyes.

person has come from a variety of sources, such as [faculty-student ratings/job interviews] and from descriptions by people who have interacted with the person. In each case, we would like you to read the information, and then indicate how much you would like the person described.

All right, on the next page, you will find a list of characteristics describing a [particular college professor here at Illinois/person who is applying for a job as a corporate executive]. Read all of this information carefully, and then based on this information, decide whether you personally would like the person described.

When you have decided whether you personally like this person, turn the page over and wait for further instructions. Feel free to turn back and refer to these instructions while you are reading the statements.
Behavioral-set instructions were almost identical, but focused on the behavior attitude. For example, the first sentence was revised to read:

In everyday life, we are often called upon to make decisions about how to respond to others (e.g., whether or not to study with another student, whether to take a class from a particular instructor, whether to hire someone for a job, and so on).

The key sentence in the next-to-last paragraph was:

Read all of this information carefully, and then based on this information, decide whether [you personally would want to take the college course/hire the person].

After reading these task instructions, each subject received a list of stimulus information, typed on a single page. Subjects were told to read through the stimulus list at their own rate. However, the maximum time allowed for reading the material was 1 min.

A 5-min distractor task was given before dependent measures were collected. Subjects were told that before obtaining their opinions on the earlier task, we first wished to obtain some other measures, one of which concerned people’s problem-solving abilities, to determine how these relate to other factors in social psychology. An anagram task was then administered, subjects being instructed to solve as many anagrams as possible during the interval allotted.

Recall of Information

Following this delay, recall of trait and outcome information was measured. The recall measure did not explicitly cue either the target person or the target behavior. Rather, subjects were asked simply to recall as many items as possible that appeared on the list they had read earlier. They were instructed to “write these items, in as much detail as possible, in the space below.” No time limit was given for the task.

Recall was scored dichotomously for gist (similarity in meaning). Two recall scores were obtained, one of which summed the number of correctly recalled traits (scores ranging from 0 to 4) and the other of which summed the number of correctly recalled outcomes (scores ranging from 0 to 4).

Attitude Measures

Finally, person and behavioral attitudes were assessed. The order in which they were measured was counterbalanced within each cell of the design. The measure of attitude toward the person was obtained by asking subjects to rate the person on seven 7-category evaluative semantic differentials (good–bad, wise–foolish, pleasant–unpleasant, nice–awful, attractive–unattractive, right–wrong, and likeable–dislikeable). Attitudes toward performing the behavior were measured on six similar scales (good–bad, wise–foolish, pleasant–unpleasant, nice–awful, beneficial–harmful, and right–wrong). Subsequent factor analyses revealed that only four scales (good–bad, pleasant–unpleasant, nice–awful, and likeable–dislikeable) loaded highly on the first factor for $A_p$, and all six scales loaded highly on the first factor for $A_B$. Therefore, only these latter sets of scales were included in each subject’s attitude score. In each case, responses to the rating scales were averaged to provide a single attitude score for each subject ranging from −3 to +3.

RESULTS

Recall of Stimulus Information

A repeated measure analysis of variance was performed on recall data as a function of instructional set (impression set or behavioral set), trait
favorableness (positive or negative), outcome favorableness (positive or negative), stimulus implications (single or dual), stimulus replication (professor or job applicant), and the type of item recalled (trait vs outcome). Information was expected to be better recalled when it had implications for the judgment congruent with the instructional set than when it had implications for the judgment incongruent with the instructional set. That is, traits should be better recalled under impression sets and outcomes should be better recalled under behavior sets, under single- but not dual-implication conditions. This hypothesized interaction of stimulus implications, instructions, and type of item recalled was highly significant $F(1, 224) = 19.53, p < .001$, and is pictured in Fig. 1. Traits with implications for $A_O$ alone were better recalled when subjects were instructed to form an impression than when they were told to make a behavioral decision. Correspondingly, outcomes with implications for only $A_B$ were better recalled under behavior-set than under impression-set conditions. However, task instructions had little effect on the recall of stimuli with implications for both attitudes.

These conclusions are also qualified to some extent, since the three-way interaction described above was significantly contingent upon (a)

![Fig. 1. Mean recall of trait and outcome information as a function of instructional set and stimulus information.](image-url)
trait favorableness, $F(1, 224) = 5.79, p < .05$; (b) outcome favorableness, $F(1, 224) = 5.26, p < .05$; and (c) both trait and outcome favorableness in combination, $F(1, 224) = 6.91, p < .01$. Means as a function of five design factors (excluding only the stimulus replication factor) are shown in Table 2. In particular, the predicted interaction was present for all combinations of trait and outcome favorableness except when traits were positive and outcomes were negative. The reason for this contingency is unclear although the nonsignificant six-way interaction, $F(1, 224) = 1.38$, indicates that this pattern occurred in both the professor and the applicant conditions. Furthermore, across both implication conditions, traits were better recalled under impression-set than under behavioral-set instructions and outcomes were better recalled under behavioral-set than under impression-set instructions, $F(1, 224) = 17.60, p < .001$. This result has implications for predictions of the memory-for-facts model on attitude data, discussed later.

Finally, negative traits were better recalled than positive ones, $F(1, 224) = 21.56, p < .001$; and outcomes were better recalled than traits, $F(1, 224) = 116.56, p < .001$, particularly when the outcomes were negative, $F(1, 224) = 14.90, p < .001$. These latter findings are conceivably due to idiosyncratic differences (e.g., word frequency, novelty) in the stimuli being recalled, although their implications as "memorable" informational items are addressed later.

### Table 2

**Mean Trait and Outcome Recall for Each Instructional, Favorableness, and Implications Condition**

<table>
<thead>
<tr>
<th>Trai recall</th>
<th>Outcome recall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Impression set</td>
</tr>
<tr>
<td></td>
<td>Impression set</td>
</tr>
</tbody>
</table>

**Single-implication conditions**

Positive trait
- Positive outcome
  - Trait recall: 1.69
  - Outcome recall: 1.50

- Negative outcome
  - Trait recall: 1.00
  - Outcome recall: 2.50

Negative trait
- Positive outcome
  - Trait recall: 2.06
  - Outcome recall: 1.69

- Negative outcome
  - Trait recall: 2.12
  - Outcome recall: 2.12

**Dual-implication conditions**

Positive trait
- Positive outcome
  - Trait recall: 1.06
  - Outcome recall: 1.94

- Negative outcome
  - Trait recall: 1.31
  - Outcome recall: 1.81

Negative trait
- Positive outcome
  - Trait recall: 1.62
  - Outcome recall: 2.06

- Negative outcome
  - Trait recall: 1.37
  - Outcome recall: 2.31
Attitude Judgments

The effects of instructional set on attitudes, considered in relation to its effect on recall, have implications for the various memory models mentioned earlier. The memory-for-facts model predicts that recalled stimuli are used as bases for reported attitudes. The memory-for-attitude model, in contrast, predicts that previously formed attitudes are retrieved and used as bases for reported attitudes. The mixed model predicts that attitudes are used under set-congruent conditions and facts are used under set-incongruent conditions.

These models, as they relate to the effects of experimental variables on attitude judgment data, will be discussed separately. Predicted effects are tested statistically in a repeated measures analysis of variance, as a function of instructional set, trait favorableness, outcome favorableness, stimulus implications, replication, and type of attitude (person or behavior). Means for each design cell, collapsed across the replication factor, are shown in Table 3.

Tests of the memory-for-facts model. Before testing the memory-for-facts model, it is first necessary to verify two assumptions underlying the study. First, it is important to verify that traits and outcomes did, in fact, influence attitude judgments. That is, the favorableness of the information manipulated should be exhibited in the favorableness of the attitudes reported. Second, these effects should be greater under dual- than under single-implication conditions. These assumptions were con-

TABLE 3
MEAN PERSON AND BEHAVIOR ATTITUDES FOR EACH INSTRUCTIONAL, FAVORABLENESS, AND IMPLICATIONS CONDITION

<table>
<thead>
<tr>
<th></th>
<th>Person attitudes</th>
<th>Behavior attitudes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Impression set</td>
<td>Behavior set</td>
</tr>
<tr>
<td>Single-implication conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive trait</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive outcome</td>
<td>1.05</td>
<td>1.66</td>
</tr>
<tr>
<td>Negative outcome</td>
<td>1.45</td>
<td>1.42</td>
</tr>
<tr>
<td>Negative trait</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive outcome</td>
<td>.34</td>
<td>.59</td>
</tr>
<tr>
<td>Negative outcome</td>
<td>.03</td>
<td>.16</td>
</tr>
<tr>
<td>Dual-implication conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive trait</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive outcome</td>
<td>1.72</td>
<td>1.97</td>
</tr>
<tr>
<td>Negative outcome</td>
<td>1.38</td>
<td>1.00</td>
</tr>
<tr>
<td>Negative trait</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive outcome</td>
<td>-.25</td>
<td>-.03</td>
</tr>
<tr>
<td>Negative outcome</td>
<td>-.88</td>
<td>-.42</td>
</tr>
</tbody>
</table>
firmed. Positive traits led to more favorable attitudes than negative traits, $F(1, 224) = 132.43, p < .001$, and positive outcomes led to more favorable attitudes than negative outcomes, $F(1, 224) = 103.74, p < .001$. Furthermore, both trait and outcome favorableness interacted with stimulus implications, $F(1, 224) = 12.91, p < .001$, and $3.89, p < .05$, respectively. In each case, dual-implication stimuli had greater impact on attitudes than single-implication stimuli.

Given that these effects are confirmed, certain predictions made by the memory-for-facts model can be tested. Inasmuch as outcome information with single implications was recalled better under behavior than impression sets (see Fig. 1), the memory-for-facts model would predict that this information should have a greater impact on behavioral attitudes in the former than in the latter case. Analogously, since traits were better recalled under impression than behavior sets, they should have more effect on person attitudes in the former conditions. Under dual-implication conditions recall did not vary as a function of instructions. Therefore, the memory-for-facts model predicts equally extreme attitudes under impression and behavior sets for dual-implication conditions. Furthermore, across both implication conditions, traits should have a greater effect on attitudes under impression than behavior sets, since greater recall was found under the former conditions. Analogously, outcomes should have a greater effect under behavior than impression sets, since greater recall was found under the former conditions. Statistically, then, parallel findings are predicted for both trait and outcome information under the memory-for-facts model. The favorableness of the information is expected to interact with instructional set and with the instructional set $\times$ implications interaction.

The data do not support these predictions. In the case of both traits and outcomes, the interactions of information favorableness and instructional set were nonsignificant, $F(1, 224) = .23$ and $1.60$, respectively, $p > .05$. Furthermore, the three-way interactions of favorableness, instructional set, and stimulus implications were nonsignificant in the case of both traits, $F(1, 224) = .57, p > .05$, and outcomes, $F(1, 224) = 1.08, p > .05$. Consequently, the data provide no support for the memory-for-facts model.

Tests of the mixed model. The mixed model suggested by Lingle and Ostrom (1979) implies that people form an attitude congruent with the instructional set while examining the stimulus information, and retrieve this attitude later on at the time it is reported. The attitude that is incongruent with the instructional set is, in contrast, based on the stimulus facts retrieved. In other words, traits should impact on person attitudes more under impression (set-congruent) than behavior (set-incongruent) instructional conditions, since attitudes are based on all traits in the former conditions and only on remembered traits in the latter conditions.
Analogously, outcomes should impact on behavior attitudes more under behavior than impression sets. These predictions, however, rely on the assumption that traits do, in fact, have a greater effect on person than behavior attitudes, and that outcomes have a greater effect on behavior than person attitudes. This assumption is verified by significant interactions found between trait favorableness and type of attitude, $F(1, 224) = 6.24$, $p < .05$, and between outcome favorableness and type of attitude, $F(1, 224) = 89.91$, $p < .001$.

Having confirmed these effects, the mixed model predictions may be tested. Statistically, the interaction between favorableness and type of attitude should interact with the instructional set. These effects for both trait and outcome favorableness were nonsignificant ($F$'s$(1, 224) < 1$). Furthermore, the mixed model predicts that remembered traits and outcomes will be retrieved more under single- than under dual-implication conditions. Therefore, information favorableness and type of attitude should also interact with (1) the stimulus implications and (2) both instructional set and implications in combination. Only one of these four effects, the four-way interaction of trait favorableness, type of attitude, instructional set, and stimulus implications, $F(1, 224) = 5.79$, was significant ($p < .05$). Means in Table 3 indicate that trait information had a greater effect on set-congruent than set-incongruent attitudes only in dual-implication (and not single-implication) conditions. This is counter to predictions of the mixed model, since recall data (Fig. 1) show that instructional set influenced memory for single-implication rather than dual-implication items. Therefore, given that only one of the six hypothesized interactions was significant (and the significant one was not in the predicted direction), these data do not provide any support for the mixed model.

Tests of the memory-for-attitude model. Finally, the memory-for-attitude model predicts that subjects retrieve previously formed attitudes under both set-congruent and set-incongruent conditions. In the present case where subjects are reporting two separate attitudes, there are two ways this might occur.

One interpretation of the memory-for-attitude model was consistently supported by the data. In this case, the model assumes that regardless of instructional set, an attitude toward both the person and the behavior are formed at the time information is received (even though a greater amount of attention is given information that is relevant to the set-congruent attitude). Such a model would predict, then, that "spontaneous inferences" (Carlston, 1980) were generated about set-incongruent attitudes even though subjects were not initially asked to form these attitudes. This model predicts no effects of instructional condition, but rather main effects of trait and outcome favorableness, interactions between favorableness and stimulus implications, and interactions between favorableness
and type of attitude. Each of these effects was confirmed, as noted earlier. Thus, the effects of attitudinal implications of trait and outcome information on person and behavior attitudes did not vary as a function of instructional set. Informational effects on the set-congruent attitude were not greater than their effects on the set-incongruent attitude, suggesting that subjects do not use a greater amount of caution in making the set-incongruent attitude.

A second version of the memory-for-attitude model was not supported. In this case, the model predicts that an attitude congruent with the instructional set is formed at the time stimuli are received. That is, a person attitude is formed under an impression set and a behavior attitude is formed under a behavior set. Subsequently, this attitude is retrieved and used as a basis for both set-congruent and set-incongruent judgments. For example, under impression set conditions, a previously formed person attitude (based on traits in single-implication conditions and on both traits and outcomes in dual-implication conditions) would be retrieved later and used to form both person and behavioral attitudes. Similarly, under behavioral-set conditions, a previously formed behavioral attitude would be used to form both attitudes. Predictions would involve four-way interactions of information favorableness, stimulus implications, instructional set, and type of attitude. The effect of trait favorableness is partially supported by the four-way interaction described previously. Under single-implication conditions, traits had a greater effect on behavioral attitudes under impression than under behavior sets. Nevertheless, comparable effects for outcome favorableness did not occur.

In summary, results are consistent with a memory-for-attitude model that proposes that both person and behavioral attitudes are formed when stimuli are received. These attitudes (or their attitudinal implications) may subsequently be retrieved and used as bases for reported attitudes.

2 The effects predicted for this second version of the memory-for-attitude model might also be expected to be greater when the set-congruent attitude was measured before the set-incongruent attitude. For example, under impression-set conditions, a person attitude should be retrieved and used to form both attitudes particularly when the person attitude is measured prior to the behavioral attitude. Analyses of variance were computed, substituting attitude order (A_p, followed by A_b vs A_b, followed by A_p) for the replication factor. The two 5-way interactions of instructions, attitude order, stimulus implications, type of attitude, and information favorableness were nonsignificant: F(1, 224) = 1.88, n.s., in the case of trait favorableness, and F(1, 224) < 1, in the case of outcome favorableness. These data, then, provide no support for version 2 of the memory-for-attitude model.

3 Two additional effects of instructional set were obtained that are not directly relevant to tests of the proposed models. First, instructional set interacted with type of attitude (A_p or A_b), F(1, 224) = 12.97, p < .001. In particular, attitudes toward the person increased from .61 under impression-set conditions to .76 under behavior-set conditions. Attitudes toward the behavior increased from -.14 under behavioral-set to .28 under impression-set conditions. One possible interpretation for this effect is that, when people are unable
Recall–Attitude Correlations

The validity of the proposed models was further examined by computing correlations between reported attitudes and the number of relevant stimulus items recalled. Separate indices were computed for trait and outcome recall. In each case, the number of items recalled was computed by multiplying the number of negative informational items by -1 and the number of positive informational items by +1. (For each index, recalled items were either all positive or all negative.) The mean of each individual cell (for all 32 cells) was subtracted from each individual’s recall and attitude scores to provide within-cell estimates of the population correlations.

The proposed models make different predictions concerning correlations between attitude and recall of relevant information. These predictions and corresponding results will be discussed separately for each of the three models. First, however, it is important to verify that recall for “irrelevant” facts does not predict attitudes. For single-implication stimuli, low correlations should occur between recall of traits and $A_B$ and between recall of outcomes and $A_O$. These correlations, computed across all single-implication stimuli, between trait recall and $A_B$, $r(111) = .13$, and between outcome recall and $A_O$, $r(111) = .05$, were low and nonsignificant ($p > .05$). Furthermore, for all but one combination of trait and outcome favorableness, “irrelevant” facts did not influence attitudes. Therefore results are generally consistent with the assumption that information with low a priori relevance to attitudes did not strongly affect those attitudes.

Tests of the memory-for-facts model. There are two tests relevant to the memory-for-facts model. First, the correlations between recalled information and judgments to which this information is relevant should each be significantly greater than zero. Across all subjects, these correlations were nonsignificant in the case of trait recall and $A_O$, $r(223) = .04$, n.s., and low but significant in the case of outcome recall and $A_B$, $r(223) = .24$, $p < .01$.

A second prediction is that, under single-implication conditions, correlations between recall and attitudes should be more positive for recall of relevant than irrelevant stimuli. That is, since people retrieve relevant but not irrelevant stimuli when forming attitude judgments, recall of the former should yield stronger relationships to judgments. This assumption was not met. The correlation between trait recall and $A_O$, $r(111) = .17$,
was nonsignificantly greater ($z < 1$) than the correlation between trait recall and $A_B$, $r(111) = .13$. Similarly, the correlation between outcome recall and $A_B$ was not significantly different ($z < 1$) than the correlation between outcome recall and $A_O$, $r's(111) = .10$ and $.05$, respectively.

In general, the data do not convincingly support the memory-for-facts model. Only one of the four tests, a significant correlation between $A_B$ and outcome recall across all conditions, is consistent with model predictions.

**Tests of the mixed model.** The mixed model would make three predictions for correlational data. First, the correlations between recall of relevant facts and attitude judgments should be significantly greater than zero under set-incongruent conditions (since people presumably retrieve the original stimuli when forming these judgments). Correlations testing this prediction, between trait recall and $A_O$ under behavior-set instructions, $r(111) = -.05$, and between outcome recall and $A_B$ under impression-set instructions, $r(111) = .12$, were both nonsignificant, $p > .05$.

A second mixed model prediction is that correlations between recall of relevant facts and attitudes should be significantly more positive under set-incongruent than under set-congruent conditions. This, again, was not the case. Correlations between trait recall and $A_O$ were not higher under behavior-set than impression-set instructions, $r's(111) = -.05$ vs $.13$, respectively, $z < 1$. Analogously, correlations between outcome recall and $A_B$ were not more positive under impression-set than behavior-set instructions; in fact, the reverse was the case. Outcome recall and $A_B$ were more strongly related under behavior-set than impression-set conditions, $r's(111) = .36$ and $.12$, $z = 1.97$, $p < .05$. Furthermore, while the former set-congruent correlation was significantly higher than zero ($p < .01$), the latter set-incongruent correlation was not ($p > .05$).

Finally, the mixed model predicts that under single-implication conditions, set-incongruent correlations between recall and attitudes will be greater for relevant than irrelevant stimulus items recalled. Again this was not the case. Under behavior-set conditions, trait recall was not more highly correlated with $A_O$ than with $A_B$ ($r's(111) = .02$ and $.19$, respectively, $z = 1.28$, $p > .05$), and under impression-set conditions outcome recall correlated no higher with $A_B$ than with $A_O$ ($r's(111) = .02$ vs $.01$, respectively, $z < 1$).

In conclusion, the data clearly do not support the mixed model. Results of none of the six tests were consistent with the assumptions of this model. In fact, a reverse effect occurred in that behavioral attitudes correlated with recall more under set-congruent than set-incongruent conditions.

**Tests of the memory-for-attitude recall.** Both versions of the memory-for-attitude model predict that the relationship between relevant stimulus recall and attitude judgments should be nonsignificantly different from
zero. In support of this prediction, the overall correlation between trait recall and $A_O$, as reported earlier, was nonsignificant. However, also reported earlier, outcome recall was significantly related to $A_B$, $r(223) = .24, p < .01$.

The memory-for-attitude models also predict that for single-implications data recall–attitude relations should be no greater for relevant than for irrelevant stimuli. This is because people presumably retrieve previously formed attitudes (or their attitudinal implications) rather than information when making judgments. Consistent with this prediction, trait recall is not significantly more highly related to $A_O$ than to $A_B$, $r'(111) = .17$ and $.13$, respectively, $z < 1$. Nor is outcome recall more highly related to $A_B$ than to $A_O$, $r'(111) = .10$ and $.05$, respectively, $z < 1$.

In summary, the memory-for-attitude models are fairly well supported by the data. However, the exception—which yields support for the stimulus retrieval (memory-for-facts) model—is the overall significant correlation between outcome recall and $A_B$.

**Individual favorableness conditions.** So far, the data indicate two deviations from predictions of the memory-for-attitude model. First, the overall correlation between outcome recall and behavioral attitudes was significant, and second, this relationship was stronger under behavior-set (set-congruent) than under impression-set (set-incongruent) conditions. Additional correlations were computed for each of the 16 cells of the design to determine whether these same relationships were consistent across conditions, and if not, to further circumscribe their occurrence.

Results shown in Table 4 indicate that, in general, correlations between recall of trait information and reported person attitudes were low and nonsignificant. Only 1 of the 16 correlations computed was significant, supporting the memory-for-attitude model.

The significant overall correlation between outcome recall and $A_B$ noted previously appears to be strongest under set-congruent (behavior-set) conditions, but was also stronger when dual-implication outcomes were matched with positive traits.4 Conceivably, under dual-implication con-

---

4 Significant correlations between outcome recall and behavioral attitudes were found in three of the eight dual-implication conditions (see Table 4). Two of the three cases pertained to behavior-set conditions and in all three cases outcomes had been matched with positive traits. Additional analyses of dual-implication stimuli showed that, overall, correlations between outcome recall and $A_B$ were higher under behavior-set than under impression-set instructions ($r'(55) = .54$ vs $.24, z = 1.92, p = .05$), and collapsing across both instructional sets, were significantly higher when the matched traits were positive than when they were negative ($r'(55) = .60$ vs $.24, z = 2.35, p < .05$). (Even under impression-set conditions, dual-implication outcomes were more positively related to $A_B$ if these outcomes were negative rather than positive ($r'(55) = .50$ vs $.02, z = 2.77, p < .01$.) These same findings were nonsignificant for single-implication stimuli ($r'(55) = .18$ vs $.02, z < 1$, in the former case, and $r'(55) = .07$ vs $.14, z < 1$, in the latter). Finally, although both traits and outcomes were relevant to $A_B$ under dual-implication conditions,
### TABLE 4
**CORRELATIONS BETWEEN RECALL OF RELEVANT STIMULUS INFORMATION AND REPORTED ATTITUDES**

<table>
<thead>
<tr>
<th></th>
<th>Impression set</th>
<th>Behavior set</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive trait</td>
<td>Negative trait</td>
</tr>
<tr>
<td>Positive outcome</td>
<td>Trait recall &amp; $A_o$</td>
<td>-.21</td>
</tr>
<tr>
<td></td>
<td>Outcome recall &amp; $A_B$</td>
<td>-.09</td>
</tr>
<tr>
<td></td>
<td>$A_o &amp; A_B$</td>
<td>.51</td>
</tr>
<tr>
<td>Negative outcome</td>
<td>Trait recall &amp; $A_o$</td>
<td>-.21</td>
</tr>
<tr>
<td></td>
<td>Outcome recall &amp; $A_B$</td>
<td>-.09</td>
</tr>
<tr>
<td></td>
<td>$A_o &amp; A_B$</td>
<td>.51</td>
</tr>
</tbody>
</table>

**Single-implication relationships**

**Dual-implication relationships**

<table>
<thead>
<tr>
<th></th>
<th>Positive trait</th>
<th>Negative trait</th>
<th>Positive trait</th>
<th>Negative trait</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive outcome</td>
<td>Trait recall &amp; $A_o$</td>
<td>.23</td>
<td>-.19</td>
<td>-.31</td>
</tr>
<tr>
<td></td>
<td>Outcome recall &amp; $A_B$</td>
<td>.24</td>
<td>.75**</td>
<td>-.11</td>
</tr>
<tr>
<td></td>
<td>$A_o &amp; A_B$</td>
<td>.34</td>
<td>.08</td>
<td>-.10</td>
</tr>
</tbody>
</table>

*Note.* Each within cell correlation is pooled across the two replication conditions and tested on 13 df.

* $p < .05.$

** $p < .01.$
ditions, a behavioral decision was based upon a person impression, spontaneously formed from the trait information, as well as a behavioral evaluation based on outcomes or the specific outcomes themselves. When traits were positive (but not negative), this person impression may have confirmed rather than disconfirmed a positive evaluation of the behavior (cf. Lingle, Dukerich, & Ostrom 1983), thereby increasing the importance of other (outcome) information at the time attitudes were reported. However, see the discussion section for a more detailed analysis of this issue.

Attitude–Attitude Correlations

Since this study has involved both attitude-toward-behavior and traditional attitude-toward-object measures, the relationship between these two attitudes was examined in light of previous attitude theory and research. The overall correlation between person and behavioral attitudes ($A_o$ and $A_B$), $r(223) = .30$, $p < .01$, was significant, as well as correlations for both impression-set, $r(111) = .21$, $p < .05$, and behavior-set, $r(111) = .40$, $p < .01$, conditions. Correlations between $A_o$ and $A_B$ for the individual conditions, reported in Table 4, suggest that the strength of the relationship was not consistent across cells of the design. In fact, correlations ranged from $.65$ to $-.41$, and only 4 of the 16 were significant.

Therefore, $A_o$–$A_B$ correlations suggest that, at least for some conditions, one of the two attitudes may have been used to form the second attitude, consistent with one version of the memory-for-attitude model.

DISCUSSION

Two conclusions were supported by the present findings. First, people retrieve their former attitude judgments (or attitudinal implications), independently of the original stimulus information, when subsequently reporting those attitudes. This occurs regardless of whether the attitude is toward a person (an evaluative person impression) or toward a behavior with respect to this person. One implication of this conclusion may be that evaluative judgments about both a person and a behavior are formed at the time information is received, and are stored in memory separately from the information on which they are based. Second, there is some suggestion from the correlational analyses that under limited conditions stimulus items are retrieved and used to form attitudes.

the correlation under behavior-set instructions between outcome recall and $A_B$ was significantly more positive than the correlation between trait recall and $A_B$ ($r's(55) = .54$ vs .17, $z = 2.30$, $p < .05$.

The four correlations that were significant all occur in positive outcome conditions, but have no obvious interpretation of relevance to the proposed models.

It is important to note, however, that given the similarities between the two attitude measures, response effects might tend to bias all correlations in favor of this version of the memory-for-attitude model.
Attitude Judgments

The conclusion that people retrieve previously formed judgments rather than stimulus information to make evaluative judgments is consistent with past research. Evaluative judgments, once formed, may be stored in memory separately from the representations of specific stimulus information (see, e.g., Anderson & Hubert, 1963; Dreben et al., 1979; Lingle et al., 1979; Lingle & Ostrom, 1979). An alternative interpretation of this conclusion, argued recently, is that evaluative judgments (e.g., about a person) as well as features of the original stimulus information (e.g., specific traits) are stored in a single integrated representation (Wyer, Srull, & Gordon, 1984), and that the representation alone is retrieved when reporting a judgment. This interpretation implies that the subsequent influence of both the impression and the original stimulus implications is indirect, mediated by the content of the representation. The overall conclusion that reported attitudes are based on previously formed judgments rather than recalled stimuli is the same in either case and is consistent with previous research. That is, the cognitive processes that influence recall of stimulus information are apparently different from the cognitive processes that influence evaluative and other judgments (e.g., Anderson & Hubert, 1963; Carlston, 1980; Ostrom et al., 1980; Petty & Cacioppo, 1981; Taylor & Fiske, 1979).

The present research extends the generality of this conclusion in several ways. First, while previous research on memory-based judgment formation has focused on person impressions (e.g., Anderson & Hubert, 1963; Carlston, 1980; Cohen, 1983; Hamilton et al., 1980; Wyer & Gordon, 1982), the present findings suggest that the same processes that mediate person impressions may mediate evaluations of a behavior toward this person. That is, when reporting their attitude toward performing a behavior, subjects apparently retrieve a stored behavioral attitude (or its implications) and use this as a basis for their later behavioral judgment.

The support generated for the first version of the memory-for-attitude model suggests, further, that both person and behavioral attitudes were apparently formed under both set congruent and set-incongruent conditions at the time stimuli were received, and subsequently retrieved when reporting these attitudes. The different formats of trait and outcome information may have influenced subjects’ organization of the information. While trait information described the target person in each case, outcome information always contained reference to a single specific behavior (e.g., taking a course from this person). Conceivably, the information was spontaneously organized with reference to each target (the person or the behavior), and both attitude judgments consequently formed while reading the information. This interpretation is similar to Carlston’s (1980) proposal that people may spontaneously organize information at the time they receive it and subsequently retrieve inferences based upon this organizing
theme. It is also consistent with the finding that, even under dual-implication conditions, the use of trait information differed somewhat from the use of outcome information. However, if this interpretation of this data is correct, why, then, was recall influenced by the instructional manipulation? The most obvious possibility is that when reporting recall, subjects spontaneously recalled the original purpose for receiving the information. This purpose probably cued retrieval of items most congruent with it.

The second way in which the present findings extend the attitude retrieval (and independence-of-storage) conclusion pertains to the heterogeneous nature of the stimulus lists. Lists used in previous research have usually contained items that were all relevant or items that were all irrelevant to the judgments formed (e.g., Anderson & Hubert, 1963; Cohen, 1981; Dreben et al., 1979). In several conditions of the present research, subjects received items some of which were relevant to their judgment task, and some of which were irrelevant. Furthermore, the stimulus items included both trait information relevant to a person impression and behavioral outcomes relevant to evaluating a behavior. Previous research (e.g., Anderson & Hubert, 1963; Carlston, 1980; Cohen, 1981; Dreben et al., 1979; Wyer & Srull, 1980) has tended to use all trait items within a stimulus set or all behavioral items that describe a number of behavior engaged in by an actor. In the case of both trait and behavioral descriptions, stimuli have generally been designed to be relevant to a person impression.

Stimulus Retrieval and Attitudes

Memory for outcome, but not trait, information was correlated to behavioral attitudes. This difference between trait and outcome information may be due to idiosyncratic differences in their stimulus content. Outcome information was bound to be more memorable than trait information (see Fig. 1). As informational items, outcomes may have been more salient or informative at the time attitudes were reported.

The relationships between outcome recall and behavioral attitudes was particularly strong under set-congruent (behavioral-set) conditions. Perhaps both evaluative impressions and stimulus information were retrieved and used under these conditions. However, it is also conceivable that the order of causation implied by correlations between recall and judgments was reversed, such that attitudes influenced the nature of information recalled. As suggested earlier (to account for the differential effects of the instructional set on recall and attitudes), subjects may have retrieved the original purpose for receiving the information as an aid to recall (e.g., “I remember being asked whether I would want to take this course”). The recall of the original instructions may have, in turn, activated retrieval of the set-congruent attitude judgment or its implications (e.g., “I remember positive things were said about taking the course”).
Finally, the relationship between outcome recall and behavioral attitudes was strongest for dual-implication stimuli, and particularly when outcomes where matched with positive traits. This latter finding suggests that outcome information may be less often used in reporting judgments when the matched traits were negative. Recently, Lingle et al. (1983) have argued that the favorableness or negativity of information per se may not be responsible for its use in forming judgments. They find evidence for a preferential search for disconfirming rather than negative information. Although in the present study an evaluative bias was not imposed by the instructional set, one may have been implicit. Subjects may have interpreted the task as judging whether a person (or behavior) was "likable" (see Lingle et al., 1983), thereby confounding negative and disconfirming information.

**Person versus Behavioral Attitudes**

Several findings were relevant to comparing the formation of person and behavioral attitudes. First, the overall correlation between the two attitudes was significantly greater than zero, but modest. Correlations between person and behavioral attitudes differed greatly, depending upon the individual experimental condition. Therefore, consistent with prior research (see, e.g., Fishbein & Ajzen, 1975), no necessary relationship was found between attitude toward the person and attitude toward behaving with respect to this person.

Second, the two attitude judgments had different implications for recall of stimulus information and retrieval processes. The two attitudinal instructional sets (impression and behavioral) had different effects on the nature of stimulus items recalled in that information recalled tended to be relevant to the attitude subjects were initially asked to form. Furthermore, subjects used different information to form person and behavioral attitudes under single-implication conditions. Traits were used to form person attitudes and outcomes were used to form behavioral attitudes. Finally, while recall of specific traits was unrelated to person attitudes, recall of specific outcomes was related to behavioral attitudes.

In combination, these findings suggest that the two attitude judgments have different effects on memory, thereby providing a unique type of data supporting theory (Fishbein & Ajzen, 1975) which argues that the two attitudes are operationally and conceptually different from one another.

**Conclusions**

The present research raises questions about the manner in which attitudinal information is stored in memory, and subsequently used to form attitude judgments. Historically, the nature of the relationship between recall of presented information and reported judgments has been inconsistent, frequently low, but most often, puzzling (cf. Taylor & Fiske,
Several explanations have been proposed, the most common of which is that people form inferences from the stimulus items, store these inferences in memory, and subsequently use them as bases for judgments (e.g., Greenwald, 1968, Petty & Cacioppo, 1981). Although this argument appears quite reasonable, an additional question has been raised concerning the conditions under which recall of specific stimuli will influence judgments and the conditions under which it will not (cf. Carlston, 1980; Ostrom et al., 1980). Similarly, the use of inferences generated at the time stimuli are initially received to form subsequent judgments may be greater under some conditions than others (e.g., Ostrom et al., 1980). Finally, the type of attitude (toward a person or toward a behavior) formed may influence the nature of information used to form judgments. Attitude–behavioral research has traditionally focused on attitudes toward objects, and only recently has this emphasis shifted. Although the importance of person impression research has not diminished, in attitude research the emphasis on attitudes toward performing behaviors (Fishbein & Ajzen, 1975) has become increasingly important.

The present data support the conclusion that primary bases for reported person and behavioral attitudes are people’s memory for attitudes or their attitudinal implications. This conclusion has been extended to include not only different types of attitude judgments, but also to include conditions in which the stimulus lists are heterogeneous with respect to the type of item received and the item’s relevance to the judgment formed. Finally, the present data suggest that there may be certain conditions under which recalled behavioral outcomes will be related to reported behavioral attitudes. It was suggested that the use of behavioral outcome information may be enhanced under behavior-set instructions, but will also depend upon features of the original stimulus items.

REFERENCES
ATTITUDE PROCESSING


