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## GATHERING INFORMATION TO FORM AN IMPRESSION: ATTRIBUTE CATEGORIES AND INFORMATION VALENCE

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### ABSTRACT

*This study investigated how target-relevant attribute categories and information valence affect information search during impression formation. Equal numbers of male and female participants (N=270) formed a likability impression of a male or female target person by accessing positive and/or negative information about the target person's appearance and/or traits. The information environment permitted either unicategorical (appearance or trait) or bicategorical (appearance and trait) searches and the information items were either univalent (all positive or all negative) or bivalent (half positive and half negative). As predicted, perceivers accessed more appearance than trait attributes in the unicategorical searches and more trait than appearance attributes in the bicategorical searches ( $p < .0001$ ). Univalent negative searches were shorter than univalent positive searches ( $p < .0001$ ), confirming a negativity effect. Bivalent searches restored search length compared to univalent negative searches, with this effect occurring only for traits in unicategorical searches ( $p < .0001$ ). Results were interpreted in terms of a fundamental preference for more stable trait information, with appearance information used primarily to enable a trait inference.*

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### INTRODUCTION

Social psychologists have investigated for more than 50 years how perceivers form impressions of others. Early studies assessed how target person attributes such as personality traits influence social impressions (Anderson 1965, 1974; Asch 1946), whereas recent research has probed the role of the perceiver's cognitive and affective states, including expectancies, stereotypes, and emotions (Brewer 1988; Fiske & Neuberg 1990; McArthur & Baron 1983). General social

cognition models have additionally considered how person information is organized and stored in memory and how such memory representations affect social judgments such as impressions (Srull & Wyer 1989; Wyer & Srull 1986).

One aspect of impression formation recently investigated is to determine how information relevant to forming a social impression is acquired. Much of the information seeking research has been conducted in the context of maintaining or changing social stereotypes. An early series of studies by Snyder and his colleagues (Snyder 1981; Snyder & Campbell 1980; Snyder & Gangestad 1982; Snyder & Swann 1978) considered how a perceiver's preconception about another's personality affects the information gathering procedure. A hypothesis-confirming strategy was found in that perceivers chose to ask from a set of prepared questions those they believed would corroborate rather than refute their initial impression. These findings were cast in doubt, however, by subsequent studies that found no evidence of a confirmatory information-seeking bias (McDonald & Hakelm 1985), particularly when perceivers are permitted to formulate their own search questions (Macan & Dipboye 1988). In the latter case, it appears that perceivers adopt a diagnostic search strategy by asking questions that permit either a corroborational or a refutational answer (Trope, Bassok, & Alon 1984).

More recent work relating information gathering to social stereotypes, however, has shown that information seekers prefer to ask stereotype-matching questions rather than stereotype-mismatching questions, even if in both cases, the answers provide stereotype-consistent information (Johnston & Macrae 1994; Johnston 1996). Other research has shown that when trying to be accurate social perceivers acquire less individuating information about stereotyped targets than about nonstereotyped targets, because they address fewer questions to the former than to the latter. Moreover, questions asked of stereotyped targets are more likely to confirm than to disconfirm the stereotype, whereas those asked of nonstereotyped targets do not show this asymmetry (Trope & Thompson 1997). Not surprisingly, a consequence of these information-seeking strategies is the maintenance, rather than alteration of existing social stereotypes.

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Attribute categories have been shown to be important determinants of the volume of information searched when forming social impressions. A pair of earlier studies by the authors (Shaw & Steers 1996; Steers & Shaw 1993) that permitted unconstrained searching among a set of target-relevant attribute categories observed that perceivers acquired more trait information than appearance, behavior, or demographic information when forming their impressions. It was determined that perceivers sought far less appearance information than any of the other attribute categories, although this effect was moderated somewhat by the sex role designations of the perceiver and target. Opposite sex perceiver-target pairs accessed more appearance information than did same sex pairs who accessed more trait information. Male perceivers accessed more appearance information about female targets than did any other perceiver-target sex combination, although even in this case an overall preference for trait information was still evident. The prevalence of trait information occurred whether the perceiver's goal was to determine if he or she would want the target person as a friend, a date, a co-worker, or an employee. Increased

attention was paid to appearance information in the date condition, especially by male perceivers, but not enough to eclipse the overall preference for trait information.

The undersampling of appearance information relative to other information categories in the Shaw and Steers (1996) and Steers and Shaw (1993) studies was unexpected given that physical appearance has been shown to play a decisive role in numerous person perception judgments (e.g., Cash & Duncan 1984; Fiske & Cox 1979; Kleinke & Staneski 1980; Walster, Aronson, Abrahams, & Rottmann 1966). Moreover, recent work in evolutionary psychology has documented the importance of physical appearance for a variety of social behaviors, including mate selection and social mobility (Buss 1995; Buss & Barnes 1986; Buss & Schmitt 1993; Kenrick, Neuberg, Zierk, & Krones 1994).

Several possibilities may be considered to account for this perplexing finding. One concerns the relative availability of appearance and trait information and another considers their respective utility in forming an impression. Appearance information is more readily available than trait information as it is concrete and usually presented visually, whereas traits refer to abstract constructs that typically must be inferred from other attribute categories. Of course, both appearance and traits can also be presented verbally, either in written or oral form. Appearance information may play an important role in social judgments and behaviors either because it may be the only information available, or because it is the easiest information to access without a lot of cognitive work. Solomon and Saxe (1977) tested the availability hypothesis and found that when a target person's intelligence was made apparent along with the individual's appearance, perceivers formed their impressions on the basis of both types of information rather than being influenced primarily by physical appearance alone.

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In the two prior studies by Shaw and Steers (1996) and Steers and Shaw (1993), perceivers searched an information environment in which both appearance and trait information were presented in a written format and were equally available. Thus, it is not surprising that appearance information was searched less often than might otherwise be expected. Perceivers might have been more interested in appearance information if they could have seen a picture of the target person, although this procedure was not used because we wished to avoid confounding attribute category and presentational format. Nonetheless, the written format used in these studies is not unlike many naturalistic situations where impressions are formed on the basis of verbal descriptions of targets obtained from another source.

An even more compelling explanation of the extensive sampling of trait compared to appearance information in our previous studies concerns the utility of both types of information. Numerous theoretical strands suggest that trait information is more useful in forming an impression than is appearance information. In his seminal work on interpersonal relations, Heider (1958) argues that person perception occurs along a "depth dimension of invariance." By this he meant that perceivers explain others' actions by inferring more stable characteristics such as intentions and underlying dispositions. Other attribution theories inspired by Heider's work (e.g., Jones & Davis 1965; Kelley 1967) similarly contend that the goal of interpersonal perception is to discover the dispositional properties of persons and objects so as to make the perceiver's world

seem more comprehensible and predictable. The tendency to overemphasize dispositional relative to situational causes when explaining other people's behavior, labeled "the fundamental attribution error" by Ross (1977), also illustrates the priority given to dispositional information by social perceivers.

More recently, Srull and Wyer (1989) proposed a person memory model advocating that individuals endeavor to form impressions consisting mostly of trait-behavior clusters. If so, appearance (and other attribute categories, such as demographic information) may be primarily useful in enabling a trait-behavior inference (e.g., attractive people act aloof). When trait and behavior information are readily available along with appearance information, perceivers are relieved of the trait-behavior inference task and so may use appearance information less frequently.

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A final factor investigated in information gathering studies concerns the valence of target-relevant information. A "negativity effect" was observed in two studies by Yzerbyt and Leyens (1991) and Leyens and Yzerbyt (1992) who found that perceivers terminated their searches earlier when sampling exclusively negative rather than exclusively positive trait information about a target person. Although unable to examine the negativity effect in our prior studies (Shaw & Steers 1996; Steers & Shaw 1993) because perceivers searched both positive and negative information items distributed among several attribute categories (appearance, trait, behavior, and demographic), we did find that negative appearance information reduced further appearance searching by reorienting the search to consider other available attribute categories. This undoubtedly contributed to the lower volume of appearance information searched in relation to other attribute categories. It also implies a qualification to the negativity effect. Negative items may shorten impression searches if information about only one attribute category is available as in the Yzerbyt and Leyens (1991) and Leyens and Yzerbyt (1992) studies, but may reorient rather than terminate search activities if diverse attribute categories can be examined as was possible in our own studies.

### **The Current Experiment**

The current experiment examined how perceiver sex, target sex, target-relevant attribute categories, and information valence affect information acquisition during impression formation. The items to be searched included positive and/or negative information about a target person's appearance and/or traits. In different conditions, the information environment permitted perceivers to engage in either bicategorical (appearance and trait) or unicategorical (appearance or trait) searches. Independent of the category conditions, the information items searched were either univalent (all positive or all negative) or bivalent (half positive and half negative). Male and female participants were asked to determine if they liked the target person.

Several different hypotheses are suggested by the review of previous information gathering studies. If, as previously argued, a primary goal of interpersonal perception is dispositional inference, it is predicted that traits will be sampled more than appearance information in the bicategorical searches. This finding was obtained in our own prior studies (Shaw & Steers 1996; Steers & Shaw 1993) which used a multicategorical information environment where both trait

and appearance, as well as other items were equally available. In such instances, perceivers need not infer traits from other cues because trait information can be accessed directly.

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Consider, however, a unicultural information environment in which perceivers can access information about appearance or traits, but not both. Unicultural appearance information may have to be searched extensively to permit the desired dispositional inferences, whereas unicultural trait information may be searched less thoroughly because no additional inferences need be made. It is therefore predicted that appearances will be sampled more than traits in the unicultural searches.

A negativity effect is predicted with univalent negative information producing shorter searches than univalent positive information. Congruent with Shaw and Steers' (1996) finding that negative appearance information reoriented rather than shortened search behavior in a multicategorical information environment, the negativity effect is furthermore expected to be muted in the bicategorical compared to the two unicultural conditions.

The current experiment includes three valence conditions in which the information items were univalent negative, univalent positive, or bivalent (both negative and positive). Since the positive information items offset to some degree the negative information items in the bivalent case, it is expected that the short searches obtained with univalent negative information will be lengthened by the inclusion of bivalent information. We shall refer to this as a "restoration effect,"<sup>1</sup> since bivalent information restores the length of searches obtained with univalent negative information. While they did not explicitly examine such restoration effects in their studies of the negativity effect, Yzerbyt and Leyens (1991) did report somewhat longer searches in their mixed (bivalent) trait conditions compared to their univalent negative trait conditions. Although there is no basis to predict how much search length restoration will occur in the bivalent condition compared to the univalent negative condition, nor whether bivalent search length restoration is affected by attribute category, we will examine the data for each of these.

## **METHOD**

### **Overview**

Male and female participants were asked to form a likability impression of a male or female target person by searching an information environment that consisted of unicultural appearance items, unicultural trait items, or bicategorical appearance and trait items. The information items were either univalent positive, univalent negative, or bivalent positive and negative. These manipulations comprised a 2 x 2 x 3 x 3 (participant sex x target person sex x attribute category x information valence) factorial design.

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### **Participants**

Participants were 270 undergraduate psychology students equally divided by sex who

participated in partial fulfillment of their course requirements. All were enrolled in various sections of the introductory psychology course at California State University, Northridge.

### **Materials and Apparatus**

A set of 80 information items was generated, including 20 positive appearance, 20 negative appearance, 20 positive trait, and 20 negative trait items. Some information items were constructed by the authors and others were obtained from prior studies (Rothbart & Park 1986; Shaw & Steers 1996; Steers & Shaw 1993). The entire set of 80 items was administered to 48 student judges who rated each item on a 7-point scale ranging from very negative (1) to very positive (7), with neutral (4) as the midpoint. A zone of rejection was established in which only those items whose mean ratings were less than 3.0 were included as negative items, and only those items whose mean ratings were greater than 5.0 were included as positive items. All items whose mean ratings fell between 3.0 and 5.0 were excluded. After numerous rejections, it was necessary to obtain more items to complete the 80 item set. To do this, two additional lists of items were developed and each list was administered to an independent sample of judges ( $N = 47$  and  $N = 52$  for the second and third samples respectively).

To avoid confounding information valence with information extremity, an attempt was made to obtain mean ratings of the positive and negative items that were equally polarized from the scale midpoint of 4.0. Polarity scores were computed for each item by subtracting 4.0 from each rating for positive items and by subtracting each rating from 4.0 for the negative items. This procedure yielded four 20-item lists in which polarity scores for positive appearance items ( $M = 1.52$ ), negative appearance items ( $M = 1.39$ ), positive traits ( $M = 1.91$ ), and negative traits ( $M = 1.64$ ) were approximately equal.

The final four lists appear in Table 1. Information items from these lists were combined to create nine decks of 20 information cards. Four decks were constructed for the univalent/unicategorical searches. The univalent positive/unicategorical appearance deck consisted of the 20 positive appearance items shown in Table 1. Likewise, the univalent negative/unicategorical appearance, univalent positive/unicategorical trait, and univalent negative/unicategorical trait decks consisted of the 20 negative appearance items, 20 positive trait items, and 20 negative trait items respectively, also shown in Table 1. Two additional decks were constructed for the bivalent searches. The bivalent appearance deck consisted of 10 positive and 10 negative appearance items, and the bivalent trait deck consisted of 10 positive and 10 negative trait items. Two more decks were constructed for the bicategorical searches. The positive bicategorical deck consisted of 10 positive appearance and 10 positive trait items, and the negative bicategorical deck consisted of 10 negative appearance and 10 negative trait items. A final deck for the bivalent/bicategorical search was constructed by combining five positive appearance items, five negative appearance items, five positive trait items, and five negative trait items. In constructing the various bivalent and bicategorical search decks, care was taken to avoid items that were inconsistent or that contradicted each other.

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**Table 1. Four Lists of Information Items Used in the Present Study**

<b>Positive Appearance</b>	<b>Rating</b>	<b>Negative Appearance</b>	<b>Rating</b>
Young looking	5.02	Sloppy clothes	2.92
Stylish clothes	5.09	Very unshapely physique	2.89
Straight teeth	5.13	Poor posture	2.85
Clear complexion	5.15	Excessive body hair	2.81
Normal weight	5.17	Very crooked teeth	2.79
Pleasingly slender	5.23	Acne, pitted complexion	2.79
Good looking hair	5.26	Flaky, scaly skin	2.79
Seductive eyes	5.28	Blotchy facial rash	2.79
Smooth skin	5.33	Obese	2.75
Good physique	5.41	Stained teeth	2.75
White teeth	5.53	Dry, cracked lips	2.70
Nice legs	5.57	Poorly groomed	2.68
Flat, smooth stomach	5.61	Extremely unattractive	2.66
Clean hair	5.71	Unpleasant facial expression	2.52
Well groomed	5.72	Constant drippy nose	2.38
Sexy lips	5.75	Excessive dandruff	2.36
Good posture	5.88	Dirty hair	2.29
Physically clean	6.10	Open sores	2.26
Pleasant facial expression	6.21	Physically dirty	2.23
Healthy looking	6.21	Sickly looking	2.04
<i>Averages</i>	<i>5.52</i>		<i>2.61</i>

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**Table 1. Four Lists of Information Items Used in the Present Study, Continued**

<b>Positive Trait</b>	<b>Rating</b>	<b>Negative Trait</b>	<b>Rating</b>
Normal emotions	5.15	Stubborn	2.96
Average intelligence	5.28	Treacherous	2.69
Fairly organized	5.40	Self centered	2.68

Dependable	5.58	Low intelligence	2.66
Practical	5.67	Gluttonous	2.60
Perceptive	5.75	Humorless	2.55
Sensual	5.75	Unemotional	2.47
Adventurous	5.85	Overbearing	2.42
Sensitive	5.85	Illogical	2.40
Very sociable	5.94	Unsociable	2.40
Independent	6.04	Boring	2.38
Courteous	6.06	Intolerant	2.23
Imaginative	6.15	Shallow	2.19
Open minded	6.19	Ignorant	2.17
Energetic	6.21	Deceptive	2.15
Pleasant	6.21	Stupid	2.13
Gentle	6.23	Quarrelsome	2.13
Brilliant	6.27	Greedy	2.10
Wise	6.31	Lazy	2.00
Generous	6.33	Revengeful	1.92
<i>Averages</i>	<i>5.91</i>		<i>2.36</i>

**Note.** Ratings on 7-point scales from *very negative* (1) to *very positive* (7).

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## Procedure

Participants were run in groups of three. Upon arrival, they were seated at a table that was divided into three cubicles with a partition separating each person. Each cubicle contained an information board equipped with 20 cards from one of the nine search decks. The 20 cards were displayed in two stacks each with 10 cards. Each stack was labeled either "appearance" or "trait," depending on the experimental condition.

Prior to their arrival, an experimenter prepared the information board for each participant. In the unicategorical conditions, the appropriate search decks were randomly shuffled and 10 cards were placed on each stack. The stacks were both labeled "appearance" or "trait," according to condition. In the bicategorical conditions, the 10 appearance cards within a deck were randomly shuffled and placed on one stack and the remaining 10 trait cards were randomly shuffled and



placed on the other stack. The stacks were appropriately labeled as "appearance" and "trait" respectively.

Participants were instructed that the study was concerned with forming impressions of others. They were told that the information board in front of them contained information about a person and that the person under consideration was either a man or a woman, depending on the experimental condition. They were asked to search through the information to determine if they would like the person. Participants were informed that they could acquire information about the person by selecting a card from the top of either stack, reading it, and placing it face down in a collection tray. They were instructed to repeat this process until they believed they had searched enough information to make their decision. To avoid the appearance of closely monitoring their behavior during the search, the experimenter busied herself with paperwork at a desk away from where the participants were seated. After completing the search task, participants were given a postquestionnaire to complete. Afterwards, they were debriefed as to the purpose of the experiment, given credit for their participation, and dismissed.

### Dependent Measures

The postquestionnaire contained two questions. They were asked how much they liked the person on a scale from strongly dislike (1) to strongly like (7). They also indicated how confident they were in their decision on a scale ranging from very unconfident (1) to very confident (7).

The measure of information search was recorded after participants were dismissed. This was search depth, which was measured by the total number of information cards accessed during a search. Depth was also recorded separately for appearance and trait cards in the bicategorical conditions.

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## RESULTS

Preliminary analyses revealed no effects or interactions with the participant and target person sex combinations. Therefore, these variables were combined in subsequent analyses that examined the effects of attribute category and information valence. Differences in the number of appearance and trait items sampled were tested in a one-way between-subjects analysis of variance for unicultural searches, and in a one-way within-subjects analysis of variance for bicategorical searches. Table 2 shows the data for the between-subjects analysis and Table 3 shows the data for the within-subjects analysis. As predicted, participants searched more appearances ( $M=12.8$ ) than traits ( $M=9.2$ ) in unicultural searches,  $F(1, 261) = 23.42, p < .0001$  (see Table 2), and more traits ( $M=6.2$ ) than appearances ( $M=4.2$ ) in bicategorical searches,  $F(1, 87) = 43.29, p < .0001$  (see Table 3).

**Table 2. Search Depth as a Function of Search Type, Attribute Category, and Information Valence**

	Search Type	
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	Uncategorical		Bicategorical	
Information Valence	Appearance	Trait	Appearance + Trait	Means
Univalent positive	15.8	10.4	12.3	12.8
Univalent negative	10.2	5.8	9.0	8.3
Bivalent	12.2	11.6	9.8	11.2
<i>Means</i>	<i>12.8</i>	<i>9.2</i>	<i>10.4</i>	<i>10.8</i>

**Note.**  $N=20$  information items possible within each attribute category.

**Table 3. Bicategorical Search Depth as a Function of Attribute Category, and Information Valence**

	Attribute Category		
Information Valence	Appearance	Trait	Appearance + Trait
Univalent Positive	4.9	7.4	12.3
Univalent Negative	3.4	5.6	9.0
Bivalent	4.4	5.4	9.8
<i>Means</i>	<i>4.2</i>	<i>6.2</i>	<i>10.4</i>

**Note.**  $N=10$  information items possible within each of the two attribute categories.

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The hypothesis that appearance information is used primarily to enable a trait inference when forming likability impressions is bolstered by contrasting the uncategorical appearance ( $M=12.8$ ) and trait ( $M=9.2$ ) conditions with the bicategorical appearance + trait ( $M=10.4$ ) combined condition (see Table 2). Searches in the combined condition were significantly shorter than those in the uncategorical appearance condition,  $F(1, 261) = 10.89, p < .002$ . Thus, when trait information is combined with appearance information, ready access to the trait information reduces length of the search. However, the bicategorical combined searches were not reliably longer than the uncategorical trait searches because participants do not sample much appearance information.

Data on negativity effects also can be observed in Table 2. The presence of an overall negativity effect was confirmed, since univalent negative information ( $M=8.3$ ) was accessed significantly less than univalent positive information ( $M=12.8$ ),  $F(1, 261) = 37.91, p < .0001$ . Follow up tests were conducted to determine if negativity effects occurred separately in the uncategorical appearance, uncategorical trait, and the bicategorical appearance + trait combined conditions. After applying a Dunn-Bonferroni adjustment, robust negativity effects were obtained for both appearances and traits in the uncategorical conditions, with fewer negative appearances

( $M=10.2$ ) accessed than positive appearances ( $M=15.8$ ),  $F(1, 261) = 18.83$ ,  $p < .0001$ , and fewer negative traits ( $M=5.8$ ) accessed than positive traits ( $M=10.4$ ),  $F(1, 261) = 13.14$ ,  $p < .0005$ . Negativity effects were also found in the bicategorical combined searches with fewer negative items ( $M=9.0$ ) searched than positive items ( $M=12.3$ ),  $F(1, 261) = 7.29$ ,  $p < .008$ . As can be seen in Table 3, bicategorical negativity effects were obtained separately for appearances with fewer negative appearances ( $M=3.4$ ) sampled than positive appearances ( $M=4.9$ ),  $F(1, 87) = 9.25$ ,  $p < .004$ , and for traits with fewer negative traits ( $M=5.6$ ) sampled than positive traits ( $M=7.4$ ),  $F(1, 87) = 11.76$ ,  $p < .0001$ .

The negativity effect was expected to be muted in the bicategorical searches compared to the unicategorical searches, since negative information may reorient, rather than shorten a search when more than one information category is available. Even though significant negativity effects were obtained in bicategorical searches (univalent positive  $M=12.3$ ; univalent negative  $M=9.0$ ),  $F(1, 176) = 6.78$ ,  $p = .01$ , and unicategorical searches (univalent positive  $M=13.1$ ; univalent negative  $M=8.0$ ),  $F(1, 176) = 29.52$ ,  $p < .001$ , the data were consistent with the muting hypothesis, insofar as negativity effects were more than three times smaller in the bicategorical searches ( $\eta^2 = .04$ ) than in the unicategorical searches ( $\eta^2 = .14$ ).

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The restoration hypothesis that bivalent searches would be longer than univalent negative searches was only partly confirmed. As shown in Table 2, bivalent information ( $M=11.2$ ) was sampled overall more than univalent negative information ( $M=8.3$ ),  $F(1, 261) = 15.84$ ,  $p < .0001$ . However, after applying a Dunn-Bonferroni adjustment to subsequent follow up tests, a reliable restoration effect was observed only in the unicategorical trait condition, where more bivalent traits ( $M=11.6$ ) were accessed than negative traits ( $M=5.8$ ),  $F(1, 261) = 21.69$ ,  $p < .0001$ . Neither the unicategorical appearance nor the bicategorical combined conditions yielded restoration effects since bivalent searches were not significantly longer than univalent negative searches in either case. Restoration effects also were not obtained in any of the bicategorical searches shown in Table 3. Thus, bivalent information offsets the negativity effect only in the case of unicategorical trait searches.

Analyses of the postquestionnaire likability data revealed an overall negativity effect that parallels the search depth findings. The data, which can be seen in Table 4, show that target persons described by univalent negative information ( $M=2.2$ ) were liked significantly less than those described by univalent positive information ( $M=5.5$ ),  $F(1, 261) = 326.67$ ,  $p < .0001$ . Additional tests confirmed that robust negativity effects on liking were obtained for the unicategorical appearance, unicategorical trait, and the bicategorical conditions considered separately ( $p$ -values from .001 to .0001). Effect size estimates indicated that the magnitude of the negativity effect on liking was more than three times larger for bicategorical information ( $\eta^2 = .37$ ) and traits ( $\eta^2 = .39$ ) than for appearances ( $\eta^2 = .12$ ).

Comparable to the search depth findings, an overall restoration effect was obtained for likability ratings, since the target person was liked more with bivalent information ( $M=3.5$ ) than with univalent negative information ( $M=2.2$ ),  $F(1, 261) = 51.21$ ,  $p < .001$ . Additional tests indicated

that a reliable restoration effect occurred for unicultural traits ( $p < .001$ ) and bicategorical information ( $p < .001$ ), but not for unicultural appearances ( $p = ns$ ). Effect size estimates indicated that the magnitude of the restoration effect on liking was approximately 10 times larger for bicategorical information ( $\eta^2 = .11$ ) and traits ( $\eta^2 = .09$ ) than for appearances ( $\eta^2 = .01$ ).

Analysis of the postquestionnaire confidence ratings produced main effects for both attribute category,  $F(2, 261) = 24.01, p < .001$ , and valence,  $F(2, 261) = 3.93, p < .03$ . Participants were more confident of their likability judgments when they were based on trait ( $M=6.0$ ) or bicategorical information ( $M=5.9$ ) than when based on appearance information ( $M=4.7$ ). Contrasts confirmed that both the trait and bicategorical information conditions were reliably different from the appearance information condition,  $p$ -values  $< .001$ . Confidence in likability judgments was higher ( $M=5.9$ ) in the univalent negative condition than in the bivalent information ( $M=5.3$ ) condition,  $F(1, 261) = 7.42, p < .01$ . No other differences were significant.

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[14]

**Table 4. Likability Impression of Target Person as a Function of Search Type, Attribute Category, and Information Valence**

	Search Type			Means
	Unicultural	Bicategorical		
Information Valence	Appearance	Trait	Appearance + Trait	
Univalent positive	5.1	5.6	5.8	5.5
Univalent negative	3.1	1.6	2.0	2.2
Bivalent	3.7	3.2	3.7	3.5
<i>Means</i>	<i>4.0</i>	<i>3.5</i>	<i>3.8</i>	<i>3.7</i>

**Note.** Higher numbers indicates higher likability on a scale from 1-7.

## DISCUSSION

This study confirmed several hypotheses about the effects of attribute category, information valence, and type of search on information acquisition in an impression formation task. A principal finding was that when forming a likability impression, perceivers searched more trait than appearance information in bicategorical searches and more appearance than trait information in unicultural searches. Thus, appearance information requires more extensive sampling than trait information to yield an impression when the information environment contains only a single information category. This does not occur in bicategorical information environments where trait information can be accessed directly. This pattern of data is consistent with the premise that traits are more useful than appearances when forming social impressions, at least when information is presented verbally.

A similar conclusion is suggested by the likability and confidence ratings, since the tendency to dislike negatively described target persons compared to positively described target persons was much stronger when based on trait rather than on appearance information. Moreover, confidence in likability judgments was more reliable when based on traits compared to appearances. In considering these latter findings, however, it should be noted that the likability and confidence measures were constructed by the authors and that their reliability could not be determined because they are single-item measures.

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Given these results and Srull and Wyer's (1989) person memory model contending that person impressions consist mostly of trait-behavior clusters, it is suggested that appearance information may be useful in forming social impressions the extent to which it enables the perceiver to make a trait-behavior inference. Exclusive appearance information may have to be extensively sampled to permit the desired inferences, whereas exclusive trait information can be searched less rigorously because no additional inferences need be made. Less appearance information is required in multicategorical environments that include traits because therein perceivers are relieved of the trait inference task.

An alternative to this explanation must be acknowledged, however. Participants may have shunned appearance information when trait information was also available because they adopted an impression-management strategy intended to avoid appearing shallow or superficial. Mitigating against this possibility, however, is the fact that the experimenter did not observe the participants' search behavior which was reconstructed from the information cards in the collection tray only after they had left. Moreover, participants sampled nearly 30% more appearance items than trait items in the two unicultural conditions, which would not be expected if they were primarily concerned with their public image. Nonetheless, since impression-management strategies have been shown to influence information search behavior in other contexts (Neuberg, Judice, Virdin, & Carillo 1993), the possibility that such influence occurred in the present experiment cannot be ignored.

The current study clearly indicates the presence of negativity effects in information search behavior. Whereas prior studies had demonstrated the negativity effect only for unicultural trait searches (Leyens & Yzerbyt 1992; Yzerbyt & Leyens 1991), negativity effects were shown also to occur for appearance information, as well as in both unicultural and bicategorical information environments. A qualification of the negativity effect merits comment, however, since it was shown to be of considerably lessor magnitude in bicategorical searches than in unicultural searches. A possible reason is because negative information in multicategorical information environments may steer the search toward the other available information categories. The negativity effect was noticeably diminished in the bicategorical information environment used in the present study and may be further reduced or even eliminated in an information environment with many information categories.

The inclusion of bivalent information in the current study permitted investigation of a restoration effect. The expectation that bivalent searches would be longer than univalent negative searches was confirmed overall, though closer inspection of the data revealed that the effect obtained only

for unicategorical trait searches. Moreover, increased liking of the target person in the bivalent compared to the univalent negative information condition occurred in the bicategorical and unicategorical trait conditions, but not in the unicategorical appearance condition. These results underscore the supposition that traits are more useful than appearances as social impression formation data.

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Given their utility, positive traits may meaningfully offset some of the negative traits in the bivalent, unicategorical searches, causing conflict in the perceiver that requires more information to resolve. Consistent with this reasoning is the finding that within unicategorical trait searches, bivalent searches were longer than univalent positive searches (11.6 vs. 10.4). Although not a reliable difference, this is the only case where the bivalent search was actually longer than its corresponding univalent positive search. Bivalent search length restoration did not occur with unicategorical appearance information, possibly because appearance items are less meaningful in themselves and are used mostly to enable trait inferences. If so, even univalent negative appearance information would have to be amply searched to make the trait inferences required by the impression. The addition of positive appearances in bivalent searches may not add much compensating information to the negative appearance information already present, thereby negating a restoration search effect.

Interestingly, bivalent search restoration did not occur for traits or appearances in the bicategorical searches. Since participants may sample other attribute categories in bicategorical searches, it is likely that bivalent information has less of an impact on restoring search behavior than in unicategorical searches where there are no other attribute categories to consider.

To summarize, the current study demonstrates that trait information is more useful in forming social impressions than is appearance information. In support of this contention is the finding that less trait than appearance information is required to form a social impression when only one type of information is available. When both types of information are available, information seekers prefer trait information. It was suggested that these differences may indicate a tendency to use appearance information to infer the more useful trait information. The distinction between unicategorical and bicategorical information environments is additionally important, insofar as notable differences are found for negativity and restoration effects between the two types of information environments. Unicategorical environments produce a large negativity effect and a restoration search effect only for traits. The negativity effect is substantially blunted and there is no search restoration effect in bicategorical environments. The differences in this study were obtained between unicategorical and bicategorical information environments. In most natural situations, information is available from many attribute categories which may be presented visually and/or verbally. Additional categories could include data on the target person's behavior, habits, attitudes, feelings, and demographic background. An interesting sequel to the present research would be to determine the extent to which negativity and restoration effects occur in such multicategorical information environments.

## FOOTNOTE

1. To clarify the difference between restoration and negativity effects, restoration effects refer to longer searches with bivalent compared to univalent negative information, whereas negativity effects refer to shorter searches with univalent negative than with univalent positive information.

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