When first impressions don't last: The role of isolation and adaptation proc...
Oscar Ybarra
Social Cognition; Oct 2001; 19, 5; Research Library
pg. 491

Social Cognition, Vol. 19, No. 5, 2001, pp. 491-520

WHEN FIRST IMPRESSIONS DON'T LAST: THE ROLE OF ISOLATION AND ADAPTATION PROCESSES IN THE REVISION OF EVALUATIVE IMPRESSIONS

Oscar Ybarra
University of Michigan

Three experiments were conducted to examine the psychological processes underlying the revision of evaluative person impressions. It is proposed that the favorability of first impressions affects the extent to which people will draw in (i.e., adapt) or resist drawing in (i.e., isolate) subsequently processed information into an extant impression. These processes have consequences for impression change and the degree to which people are able to retrieve the evidential basis of their impressions. The findings from three experiments provided evidence for the present conceptualization. The findings are discussed in terms of their consequences for belief change and social information processing.

Forming evaluative impressions of others seems to be a very natural (Asch, 1946; Heider & Simmel, 1944) and inescapable process (Wojciszke, Bazinska, & Jaworski, 1998). People, when encountering others, appear to readily entertain the hypothesis "what kind of person is she or he?" or "Is this person good or bad?" A consistent finding from the impression formation literature is that of primacy effects, indicating that the preliminary basis of an impression perseveres and colors how subsequent information about a person is processed (e.g., Anderson, 1965; Asch, 1946; Hendrick & Costantini, 1970; Stewart, 1965). This general finding appears to agree with people's lay theories regarding the importance of making a good first impression on others.

The author thanks Ann Shen, Hythem Zayed, and Sneha Sastry for their help in collecting and coding the data. He also offers his gratitude to Serena Chen, James Hilton, and Walter Stephan for their helpful comments on an earlier version of this paper.

Address correspondence to Oscar Ybarra, University of Michigan, Dept. of Psychology and Research Center for Group Dynamics, 525 East University, Ann Arbor, MI 48109-1109; E-mail: oybarra@umich.edu.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

At times, after people have formed first impressions, they may have the opportunity to modify their evaluative impressions of others, whether it is a result of encountering these people again or having a conversation about them with a friend, for example. What are the effects on people's first impressions of subsequently learning behavioral information that *contradicts* them? There has actually been very limited research on this topic. Consequently, the nature of the psychological processes involved in impression revision are not well understood. Before discussing the nature of these psychological processes, it is important to consider the finding of negativity effects in person perception.

NEGATIVITY IN PERSON PERCEPTION

A recurring theme in person perception indicates that negative information about others is weighted more heavily in impressions than positive information (e.g., Anderson, 1965; Birnbaum, 1972; Fiske, 1980; Hamilton & Zanna, 1972; Kanouse & Hanson, 1972; Wyer, 1970). One explanation for negativity effects in person perception is based on the implicational schemata framework (Reeder & Brewer, 1979). These investigators propose that people have schemata that relate different behaviors with underlying trait dispositions. Depending on the schema, a behavior will either strongly or less strongly imply an underlying disposition. For a hierarchically restrictive schema, the schema most relevant to negativity effects, a trait at one end of the continuum may imply a broad range of behaviors compared with a trait at the other end of the continuum. For example, with regard to the trait honest, perceivers expect that honest people typically enact honest behaviors, whereas dishonest people may enact both dishonest and honest behaviors. Thus, dishonest behavior is expected only from people with such a disposition, whereas honest behaviors may be enacted by both honest and dishonest people. As a consequence, negative behavior provides more information about the person. A related approach, the cue diagnosticity perspective (Skowronski & Carlston, 1987), suggests that cues about others (e.g., their behavior) contain probabilistic information with regard to the categories (trait dispositions) to which they are likely to be assigned. Using the same example above, dishonest behavior would serve as a better cue for dispositional category assignment than would honest behavior because the former behavior has greater diagnosticity than the latter (has more probabilistic information regarding underlying dispositions). As a consequence, negative behavior has a greater effect on people's judgments of others.

The implicational schemata and cue diagnosticity approaches distinguish between the inference processes that underlie person perception

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

in the morality and the competence domains. Morality refers to characteristics relevant to ethics and a sense of right and wrong in interpersonal relationships, (e.g. honesty, friendliness, and helpfulness). Competence refers to characteristics relevant to task accomplishment, achievement, and attainment (e.g. intelligence, creativity, and skillfulness; for a discussion of how competencies might become moralized as a function of cultural background see Ybarra, 2001). In the morality domain, negativity effects are the norm as just described. But in the competence domain, positivity effects tend to be found, although such effects are not as ubiquitous as negativity is in the morality domain. Nevertheless, in the competence domain, people appear to hold the lay theory that an incompetent person will not all of a sudden produce a competent performance. But it is likely that a competent person will on occasion, for a variety of possible reasons, do incompetent things. Therefore, the most informative cue in the competence domain is positive person information (Reeder & Brewer, 1979; Skowronski & Carlston, 1987).

The current research focuses on the formation and revision of evaluative impressions when people process both morality- and competence-related information. It is probably the case that in many, if not most day-to-day situations, the information people process about others contains a mix of morality-related behaviors and characteristics (honesty, unhelpful) and competence-related behaviors and characteristics (intelligent, unimaginative). It might be expected that under such circumstances the inferential tendencies from both domains (negativity in one, positivity in the other) would neutralize each other. For instance, Reeder and Coovert (1986) have suggested that "the ability [competence] assumption 'cancels out' the potential impact of the social desirability assumption," the social desirability assumption being more aligned with the morality than the competence domain. They further suggest that "The resultant set of implicational relations may be some compromise between these two assumptions ... To the extent that an ability [competence] component is present on a given personality dimension, we would not expect negativity effects when impressions are formed" (p. 15).

Another possible characterization of impression revision processes when people process both morality- and competence-related information will be referred to as the *morality dominates* perspective. According to this perspective, morality information will dominate and thus dispose person perception processes toward negativity. Research has shown, for example, that morality is the default dimension people use to understand and think about others. Recent research from our lab has shown, using a lexical decision task, that both older and younger adults more quickly recognize morality-related words than competence-related

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

words (Ybarra, Chan, & Park, 2001). More relevant to the present research, morality information is also more likely to dictate the tenor of an impression compared with competence information (De Bruin & Van Lange, 1999, 2000; Peeters & Czapinski, 1990; Wojciszke et al., 1998). Specifically, many studies have obtained negativity effects when people have been asked to process information from both the morality and competence domains within the same task (e.g., Chan & Ybarra, 1999; Hamilton & Huffman, 1971; Martijn, Spears, Van der Pligt, & Jakobs, 1992; Pratto & John, 1991; Rothbart & Park, 1986; Wojciszke et al., 1998). Therefore, it would be expected that negativity would also be prominent when people use both morality- and competence-related information in forming and revising their evaluative impressions. The following section lays out a conceptualization of the psychological processes proposed to underlie impression revision, especially under conditions in which negativity effects should be expected.

IMPRESSION REVISION: THE PROCESSES OF ISOLATION AND ADAPTATION

A major goal facing social perceivers is to determine what others are like, that is, to uncover their dispositional characteristics (Fiske, 1992; Gollwitzer & Moskowitz, 1996; Jones & Gerard, 1967). Being able to draw conclusions about others' dispositions serves to pinpoint the invariances in people and thus facilitates prediction over different contexts (Heider, 1944)[1]. According to much research in social cognition, uncovering others' dispositional characteristics should readily occur when processing negative behavioral information (e.g., Rothbart & Park, 1986; Reeder & Spores, 1983; Wyer & Gordon, 1982, Experiment 2; Ybarra & Stephan, 1996, 1999; Ybarra, Schaberg, & Keiper, 1999). In contrast, when processing positive behavioral information, situational inferences are likely to be made (e.g., Miller, 1984; Reeder & Spores, 1983; Ybarra & Stephan, 1999). Thus, it would be expected that a person learning about another's negative behavior would be able to determine (sub-

1. Knowledge of social norms can of course also serve as a reliable basis for predicting others' behaviors. Many times people decide what their own behavioral response should be by invoking a particular norm representation. However, norms appear amenable to social constructive processes, whereas people's implicit theories of personality and human behavior appear to be more stable, for example, across culture (e.g., Benet & Waller, 1995). In addition, the human mind seems to be innately prepared to learn to seek agency in animate objects (i.e., other humans) (e.g., Leslie, 1994; Wellman, 1990). Therefore, it appears that searching for the causes of behavior in people themselves is a basic process.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

jectively) that the person or something about the person brought about the negative behavior. However, when processing others' positive behaviors, people should be inclined toward situational causes, or a mix of person and situational information. This should make it less likely that perceivers will be able to determine that the person caused the behavior.

A variety of research findings are consistent with this characterization. For example, Carlston (1980) found that after a week's delay, participants' confidence in their impression judgments declined to a greater extent when they had formed positive compared with negative impressions. Research by Lingle and Ostrom (1979) showed that people were slower at making judgments about a person after having formed positive versus negative impressions. And Yzerbyt and Leyens (1991) obtained findings showing that people requested more information in order to make a decision about a person when they had formed preliminary positive compared with negative impressions. Other research has shown that people have implicit theories that indicate that positive behaviors tend to be caused by social demands, whereas negative behaviors tend to be caused by people's dispositional qualities (Ybarra & Stephan, 1996, 1999). All of these findings converge to suggest that people should conclude that a target caused the behavior(s) after forming negative compared with positive impressions.

The effect of being able or unable to characterize a target as the cause of behavior should have implications for the revision of evaluative impressions and can be conceptualized in terms of *isolation* and *adaptation*. Isolation and adaptation are constructs used in research on retroactive interference. In studies of retroactive interference, investigators examine how the processing of *subsequent* information affects the ability to retrieve *earlier* learned information from memory (Hunter, 1957; Klatzky, 1975). Isolation occurs when the contents of a representation resist retroactive interference from subsequently processed information; thus, learning subsequent information has little effect on the retrieval or use of earlier learned information. In contrast, adaptation occurs when the contents of a representation are subject to retroactive interference. In such cases, the ability to retrieve or use the earlier learned information is impaired (Hertel, 1985).

The degree to which isolation and adaptation occur in impression revision should be dependent on participants' ability to characterize the nature of the target. Being able to conclude that the target caused the behavior should reduce the need for the perceiver to integrate and process subsequent information systematically, which should have the effect of isolating the initial impression from the subsequently processed information. However, being unable to conclude that the target is the cause of the behavior(s) should lead people to remain "cognitively open" and

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

systematic as they integrate subsequent information to try to ascertain the dispositional nature of the target. This should have the effect of making the initial impression adapt the subsequently processed information. Given that people are more likely to infer dispositional characteristics from negative than positive behavioral information (in the morality domain or when morality dominates), it should be expected that people who form initial negative impressions should be more likely to *isolate* their initial impressions from subsequently processed information. People who initially form positive impressions should be more likely to integrate and *adapt* subsequent impression-inconsistent information into their initial impressions[2] (Ybarra, Schaberg, & Keiper, 1999).

With regard to change in evaluative impressions, it would thus be expected that people who form initial positive impressions would produce greater change in their initial impressions than people who form initial negative impressions. This should be expected because the former participants are more likely to adapt subsequent impression-inconsistent information into their impressions, whereas the latter participants are more likely to isolate their impressions from subsequently processed information. In addition, these different approaches to the information should produce other outcomes that derive from people being able or unable to pinpoint the target's dispositional characteristics. The first experiment was conducted to provide one example of isolation and adaptation, in addition to advancing other theoretical issues. The last two experiments were conducted to provide checks on these underlying processes.

EXPERIMENT 1

METHOD

Design and Participants. Forty-six participants were run in non-interacting groups of four to six and were given course credit for their participation. The participants were randomly assigned to conditions in which they formed either a positive or a negative impression using both morality- and competence-related behavioral information. After rendering evaluative impression judgments (time1), participants were presented with a second set of behavioral statements that disconfirmed their initial

---

2. The discussion of isolation and adaptation processes is not intended to denote a conscious and deliberate attempt by the perceiver to manipulate an impression so that it either becomes isolated from or adapts to subsequent information. Isolation and adaptation processes should be conceived as occurring with little awareness by the perceiver.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

impressions. Participants were then asked to render revised impression judgments (time2).

Materials and Procedure. Participants were recruited to take part in a social information processing study. At the lab, they were given brief instructions regarding the impression formation task. Participants were told that they would be forming impressions of a person based on descriptions of behaviors the target had enacted in the past. Participants were told that they would provide judgments of the target after forming their impressions. After reading through the instructions, participants were presented with both morality and competence-related behavioral statements with which to form their impressions.

The behavioral stimuli were selected based on their extremity and equivalence in favorability across both the morality- and competence domains. Norming participants ($n = 21$) provided favorability ratings for the behaviors used in the present studies. Participants' favorability ratings were submitted to a 2 (Behavior domain: morality, competence) × 2 (Behavior valence: positive, negative) within participants analysis. The analysis yielded the main effect for valence, $F(1, 20) = 237.04$, $p < .0001$, indicating that the positive behaviors ($M = 5.52$; morality $M = 5.48$, competence $M = 5.56$) were rated more favorably than the negative behaviors (M=2.63; morality M=2.51, competence M=2.75). The positive behaviors (difference from midpoint = 1.52) were slightly more evaluatively intensive than the negative behaviors (difference from midpoint = 1.37), which if anything would work against the hypothesis regarding the asymmetry in belief change. The interaction of the two factors was not present, $F(1, 20) < 1.00$. Examples of the morality-related behaviors included "opened fake bank accounts and wrote many bad checks" (negative) and "completed his time sheet accurately at work" (positive). Examples of competence-related behaviors included "got lost on the way to work" (negative) and "solved the problem in a logical way" (positive).

In forming their initial impressions, participants were presented with 8 behavioral statements — 4 related to morality and 4 related to competence. For example, in the initial negative impression condition, participants were presented with four dishonest behaviors and four unintelligent behaviors. Two different versions of the experimental materials were created, and the behaviors were presented according to two different schemes (in scheme 1, competence-related behavior was presented first at the beginning of the presentation followed by morality-related behavior and vice versa in scheme 2). Participants were paced through a booklet containing the behaviors, one per page. Participants were allowed six seconds per behavior statement.

After forming their initial impressions, participants completed their time1 judgments. Participants' responses to five questions served as an

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

evaluative impression index. The first item assessed the favorability of their impression, and the remaining items assessed how honest, intelligent, moral, and competent the target was thought to be. These questions were answered on scales that ran from 1 = "Extremely unfavorable" (dishonest, unintelligent, immoral, incompetent) to 7 = "Extremely favorable" (honest, intelligent, moral, competent). Although the morality and competence domains are independent, they both share an underlying evaluative dimension (Rosenberg, Nelson, & Vivekananthan, 1968). The Cronbach's α for the index was .96. Participants then answered one other question that assessed how engaged they were with the impression task. The question was answered on a 7-point scale that ran from 1= "not all" to 7 = "very much so." After the participants finished answering the questions, they were told that there was additional information to learn about the target.

They were then presented with four additional behavioral statements that were inconsistent with their initial impression (e.g., For people who formed initial positive impressions the behaviors were negative (2 dishonest and 2 unintelligent) and vice versa for people who formed initial negative impressions (2 honest and 2 intelligent). Participants were paced through the second list of behavior statements as done in phase 1 of the impression task. The behaviors used to disconfirm an initial impression were taken from the ones read by participants who had formed the oppositely valenced initial impressions (one of two different versions). After being paced through the second list of behaviors, participants were asked to respond to a second set of questions. Similar to time1 judgments, they indicated their impressions of the target. They were told to make these judgments in light of all of the information they had received about the target. The Cronbach's α for this index was .87. In addition, participants answered a question that assessed the typical causes of the target's behavior. This question was answered on a scale than ran from -7 "dispositional, internal causes" to +7 "situational, external causes." Participants were then debriefed, given course credit, and thanked for their participation.

RESULTS

CAUSAL JUDGMENTS

If participants who learned positive behavioral information in forming their initial impressions failed to pinpoint that the target caused the behavior, whereas participants who formed initial impressions did, the former group of participants should regard the target's behavior as less dispositionally caused than participants who formed initial negative im-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

TABLE 1. Time1 and Time 2 Judgments for Experiment 1 as a Function of the Favorability of the Initial Impression. (The higher the score, the more situational the attributions, the more favorable the impressions, and the more engaged participants were with the impression task.)

	Initial Impression			
	Positive (n = 23)		Negative (n = 23)	
	M	*SD*	*M*	*SD*
Attributions	.78	1.83	-.87	1.96
Engaged with Impression Task	5.00	.85	4.35	1.52
Impressions				
Time 1	6.09	.34	2.37	.55
Time 2	3.16	.94	4.15	1.16

pressions. Participants' causal judgments were submitted to a between participants' analysis (see Table 1). Consistent with expectations, participants who formed initial positive impressions judged the target's behavior in general to be less dispositionally caused than participants who formed initial negative impressions, $F(1, 44) = 8.71$, $p < .005$.

IMPRESSION CHANGE

Based on previous findings showing that positive morality impressions change to a greater extent than negative morality impressions (Reeder & Coovert, 1986), and that morality-related information dominates evaluative impressions when competence-related information is also available for processing (e.g., Chan & Ybarra, 1999; Martijn, Spears, Van der Pligt, & Jakobs, 1992; Wojciszke et al., 1998), it was expected that initial positive impressions would undergo greater revision than initial negative impressions in the present study. According to the present conceptualization, the asymmetry in impression change occurs due to an adaptation process that is triggered when an initial positive impression is formed, and an isolation process that occurs when an initial negative impression is guiding information processing.

As described earlier, five different responses comprised participants' impression judgments. The items assessed favorability of impression and degree of honesty, intelligence, morality, and competence (see Table 1 for means). In order to assess change in impressions, the composite impression scores were subtracted from each other to create an index of absolute change (Reeder & Coovert, 1986). These absolute change values were submitted to a between participants' analysis, which yielded a

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

main effect for initial impression, $F(1, 44) = 15.79$, $p < .0003$. Consistent with the findings obtained by Reeder and Coovert that exclusively used morality-related information, this effect indicated that participants who formed initial positive impressions (M change = 2.93) changed their impressions to a greater extent than participants who formed initial negative impressions (M change = 1.77). Thus, even when both morality- and competence-related information served as the basis for impressions, the asymmetry in impression revision was obtained.

Although the impression change results indicate negativity overall (positive impressions change more than negative impressions), it is important to determine the exact nature of change across the two domains. Thus, the morality and competence judgments were analyzed separately to explore the morality dominates hypothesis further. For the analysis, two composite judgments were created from those described earlier. One judgment score consisted of the average of the degree to which the target was rated as honest and moral. The second judgment score consisted of the average of the degree to which the target was regarded as intelligent and competent. Then the time2 judgments were subtracted from time1 judgments to assess degree of change on the separate dimensions. The two change scores were then included as a within participants' factor in a mixed design ANOVA, with initial impression condition as the between participants' factor.

The analysis yielded a main effect for domain, $F(1, 44) = 22.18$, $p < .0001$, indicating that the amount of change was greater overall for the morality domain than for the competence domain ($M = 2.78$ vs. $M = 1.78$). The interaction of domain and initial impression was also reliable, $F(1, 44) = 10.73$, $p < .0001$. An examination of the means indicates that negativity was present for both domains, although reliable only for the morality domain (M's = 3.74 (positive impression) vs. 1.82 (negative impression) for morality, $p < .0001$, and M's 2.04 (positive impression) vs. 1.52 (negative impression) for competence, $p < .15$). The interaction appears to be driven by the fact that the amount of change for the initial negative impressions was equivalent for the morality and competence domains, $F(1, 22) = 1.40$, $p < .25$, whereas the amount of change for the initial positive impressions was greater for the morality than the competence domain, $F(1, 22) = 25.14$, $p < .0001$. Despite the presence of the interaction, the general trends toward negativity in both domains and the finding showing no difference between domains in the initial negative impression conditions provides some support for the hypothesis that morality concerns dominate in the revision of evaluative impressions. The remainder of the analyses focused on indexing outcomes posited to result from the processes of isolation and adaptation in impression revision.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

DIFFERENCES IN APPROACHES TO THE INFORMATION

Cognitive Engagement with the Impression Task. To the extent that participants had difficulty pinpointing that the person caused the behaviors, the more careful participants should be in their processing of the subsequent target information, and as a consequence, the more they should judge that they were cognitively engaged with the impression task. Participants' responses to this question were submitted to a between participants' ANOVA (see Table 1 for means), and the findings produced a marginally reliable effect consistent with the hypothesis, $F(1, 44) = 3.20$, $p < .08$. Participants who formed initial positive impressions indicated that they were more engaged with the impression task than participants who formed initial negative impressions.

Correlation between Impressions at Time 1 and Time 2. If forming initial positive impressions leads people to adapt (integrate) subsequent information about a target, whereas forming initial negative impressions leads people to isolate their initial impressions from subsequent information, then it would be expected that people who formed initial positive impressions would be less likely (or less able) to rely on their initial impressions to make revised judgments than people who formed initial negative impressions. The likely outcome of such processes would be a lack of a reliable correlation between impression judgments at time1 and at time2 for participants who formed initial positive impressions, but a significant correlation for participants who formed initial negative impressions. Correlations were computed between time1 and time2 impression judgments. The results indicated that for participants who formed positive impressions, time1 and time2 impressions were not significantly correlated, $r(22) = .18$, $p < .42$. However, for participants who formed negative impressions, time1 and time2 impressions were significantly correlated, $r(22) = .47$, $p < .02$, $Z = 1.04$. Although the Fisher r to z transformation was not significant, it is instructive to examine the correlations as a function of domain. These results were comparable to the overall analysis. For both the morality and competence domains, time1 and time2 judgments were not correlated in the initial positive impression conditions, $r(22) = .11$, $p < .60$ and $r(22) = -.18$, $p < .41$, respectively. In contrast, participants who formed initial negative impressions yielded reliable correlations between time1 and time2 judgments in both the morality and competence domains, $r(22) = .41$, $p < .05$ and $r(22) = .52$, $p < .01$, respectively.

DISCUSSION

Despite the fact that participants were presented with both morality- and competence-related information, those who formed initial positive

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

impressions judged the target's behavior to be less dispositionally caused than participants who formed initial negative impressions. Further, in replicating earlier research, the impression findings from Experiment 1 showed an asymmetry in impression revision, as positive impressions underwent greater change than negative impressions following the processing of impression-inconsistent information (also see Briscoe & Shaw, 1967; Reeder & Coovert, 1986). Further, in extending previous research, the asymmetry was obtained when a mix of morality and competence information was available for processing (e.g., Chan & Ybarra, 1999; Hamilton & Huffman, 1971; Martijn et al., 1992; Pratto & John, 1991; Rothbart & Park, 1986; Wojciszke et al., 1998; Ybarra & Chan, 2000).

Additional analyses performed separately on the judgments for the morality and competence dimensions indicated that impression change was equivalent for both domains when the initial impressions were negative but not when the initial impressions were positive. These results provide partial support for the idea that morality considerations dominate competence considerations when people form their evaluative impressions based on a mix of morality- and competence-related information. This pattern of results suggests that the starting point of an impression, whether it is positive or negative, may play a role in the degree to which the inference tendencies for the morality domain will affect the inference tendencies associated with the competence domain. However, the patterns of correlations between time1 and time2 judgments and the results to be presented from Study 2 actually indicate more similarities than differences in how people process morality- and competence-related information.

The asymmetry in impression revision is posited to result from the fact that people who form initial positive impressions fail to pinpoint whether the person is the cause of such behavior, as the attribution findings indicated. This inability to pinpoint the dispositional qualities of the person induces careful processing of subsequent information as it is adapted to the initial impression, which allows the initial impression to become altered. In contrast, people who form initial negative impressions are able to conclude that the person caused the behavior. As a result, the perceiver should be less open to subsequent information about the target and isolates the initial impression, which may serve to protect it from subsequently processed information.

The findings showing that participants who formed initial positive impressions were more engaged with the task than participants who formed initial negative impressions are consistent with these suggestions. And so are the patterns of correlations that demonstrated that participants who formed initial positive impressions produced revised judgments that were not correlated with initial judgments, whereas par-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

ticipants who formed initial negative impressions produced time1 and time2 judgments that were correlated. These patterns of correlations were obtained for both the morality and competence domains. This suggests that the impressions tapped by time1 judgments differed at time2 for people who formed initial positive impressions but not for people who formed initial negative impressions. This should be expected given the occurrence of adaptation and isolation in the initial positive and negative impression conditions, respectively.

EXPERIMENT 2

The findings from the first experiment are consistent with earlier work on impression revision and have extended the present analysis to conditions in which people process information related to different domains of human behavior. Of greater importance, though, is the examination of the psychological processes involved in the revision of evaluative impressions. These processes implicate people's capacity to pinpoint whether the target was the cause of the behavior and how this affects subsequent processing of information about a person. In addition, the manner in which people process subsequent information about a person appears to be well characterized by the processes of adaptation and isolation. The purpose of the next two experiments was to provide more direct evidence for the proposed processes of adaptation and isolation as a function of the nature of people's initial impressions.

RETROACTIVE INTERFERENCE IN MEMORY

One way to demonstrate the existence of an adaptation or isolation process is to directly examine people's ability to retrieve the evidentiary base of their impressions. As noted earlier, in studies of retroactive interference, the processing of *subsequent* information at times affects the ability to retrieve *earlier* learned information from memory (Hunter, 1957; Klatzky, 1975). Isolation is a process that occurs when the contents of a representation resist retroactive interference from subsequently processed information; thus, learning subsequent information has little effect on the retrieval of earlier learned information. Adaptation is a process that occurs when the contents of a representation are subject to retroactive interference. In such cases, the ability to retrieve the earlier learned information is impaired (Hertel, 1985). If people tend to adapt subsequent information after having formed positive impressions, the contents of the initial positive impression should be subject to retroactive interference. But if people tend to isolate their initial negative im-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

pressions from subsequently processed information, this should reduce the extent to which the behavioral basis of the initial impression is subject to retroactive interference.

OVERVIEW OF RETROACTIVE INTERFERENCE PARADIGM

In a typical retroactive interference study, the experimental and control groups are presented with identical information at Stage 1. In Stage 2, the experimental group is presented with a second learning activity relevant to Stage 1 learning, whereas the control group is not or is presented with information irrelevant to the information learned at Stage 1. After a retention interval (e.g., interpolated task), participants' memory is tested (Hunter, 1957; Klatzky, 1975). Such studies show that the control group has better memory for the information presented at Stage 1 compared with the experimental group, indicating that the learning of relevant information at Stage 2 had an interfering effect on the experimental group.

It is important to distinguish the present hypotheses from findings in social cognition showing better memory for negative behavioral information (e.g., Skowronski & Carlston, 1987). In the current research, for example, when people learn positive behaviors at Stage 1, they are not asked to recall any of the negative behaviors processed at Stage 2, but instead to recall as many of the previously processed positive behaviors. Thus, if the outcome of the study indicates that people's ability to retrieve the positive behaviors is affected after subsequently processing contradictory behavioral information, retroactive interference has occurred.

METHOD

Design and Participants. Sixty-eight students were given course credit for their participation. Students were randomly assigned to one of two experimental conditions or one of two control conditions ($n = 17$ per condition) and were run in non-interacting groups of four to six.

Materials and Procedure. Participants were introduced to the impression formation task as done in Study 1. Students were then given a small booklet containing three sheets of paper; the middle sheet was blank and used to separate the two impression formation stages. For Stage 1 of the impression formation task, participants read through the first sheet (blue in color) of the booklet that contained ten printed statements describing different behaviors performed by an actor "Jason." The colored sheet of paper was used so that participants could use it as a cue to recall

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the information from the appropriate stage of their impressions. The behaviors in one experimental condition were all negative and in the second experimental condition were all positive. The behavioral stimuli were taken from the same pool used in the previous study and included an equal number of competence (four) and morality-related (four) behaviors, with an additional two behaviors unrelated to these two domains. The control groups were presented with the same two sets of behaviors at Stage 1.

All participants were instructed to begin forming their impressions and after two minutes, the experimenter told them to stop. At this point, participants were asked to turn to the third page of the booklet. This *white* sheet of paper contained ten more behavioral statements that participants read through. Participants in the experimental groups were presented with behaviors relevant to their initial impressions in that the behaviors contradicted the behavioral basis of the first impressions. The experimental group that had received negative behaviors during Stage 1 was now presented with the positive behaviors used in Stage 1 for the other experimental group. The experimental group that had been presented with positive behaviors was at this point presented with the negative behaviors that had been presented to the other experimental group during Stage 1. Participants in the control conditions were presented with behaviors irrelevant to the initial impression; the ten behaviors were neutral with regard to any traits (e.g., "Jason rode the elevator to the third floor," or "Jason ordered a cheeseburger for lunch"). Students were given two minutes to continue forming their impressions of Jason. After the two minutes were up, they were instructed to stop and were presented with a three-minute interpolated task to reduce working memory influences on recall. After the interpolated task, participants were presented with a "surprise" recall task. Participants were specifically asked to recall as many of the behaviors as possible from those presented to them at *Stage 1*, the *blue* sheet of the impression booklet. For people who formed initial positive impressions, this meant attempting to recall as many of the positive behaviors, whereas for people who formed initial negative impressions, this meant attempting to recall as many of the negative behaviors. They were given four minutes to work on the recall task and were then completely debriefed.

RESULTS

As done in studies of person memory (e.g., Srull, 1981), a judge blind to the conditions credited participants with correctly recalling an item if it captured the gist of an originally presented behavior statement. Half credit was also given for recalled items that represented partial mean-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

TABLE 2. Mean Recall of Stage 1 Information as a Function of the Valence of the Behavioral Basis of the First Impression.

	Initial Impression			
	Positive		Negative	
Condition	*M*	*SD*	*M*	*SD*
Experimental	2.85	1.46	4.62	1.75
Control	4.50	1.50	4.97	.94

ings (cf. Belmore, 1987). The appropriate analysis for the standard retroactive interference study involves comparing the experimental group to its respective control group given the lack of equivalence for the information processed at Stage 2 by the two groups. This analysis is presented first, followed by the presentation of an ANOVA in which the different conditions are treated as different levels of the two factors.

Table 2 presents the means for overall recall as a function of condition. In doing the analysis between each experimental and control group, the results indicated that there was no difference in recall for Stage 1 information between the two groups that received negative behaviors to form their initial impressions. Regardless of whether participants learned contradictory positive or neutral behavioral information at Stage 2, their recall for Stage 1 information, the negative behaviors, was equivalent, $F(1, 32) < 1$. Thus, no detectable retroactive interference was found when the initial impressions were based on negative behaviors.

Unlike the groups that formed initial negative impressions, the experimental and control groups that formed initial positive impressions differed from each other. Participants who received contradictory negative behaviors at Stage 2 recalled less of the Stage 1 positive behaviors than participants in their respective control group, $F(1, 32) = 10.48$, $p < .003$. Thus, the subsequently processed contradictory information interfered with memory for the behavioral information on which the initial impression was based. The analysis was also conducted as a 2 (initial impression; positive vs. negative) × 2 (Stage 2 behaviors; impression-inconsistent vs. neutral) between participants' ANOVA, which yielded an interaction of the two factors, $F(1, 64) = 3.40$, $p < .06$. This analysis helps to confirm that the effects of processing the Stage 2 information on memory for Stage 1 information differed depending on whether the initial impression was based on positive or negative behavioral information.

An analysis was also conducted to determine the extent, if any, to which memory for the originally learned behaviors varied as a function of not only the initial impression and behavior valence but also the do-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

TABLE 3. Mean recall of Stage 1 information as a function of the valence of the behavioral basis of the first impression and behavioral domain.

	Initial Impression							
	Positive				Negative			
	Morality		Competence		Morality		Competence	
Condition	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Experimental	1.76	1.05	1.09	.90	2.41	1.21	2.20	.92
Control	2.56	1.30	1.94	1.06	2.70	.81	2.26	.50

main (morality, competence) to which the behaviors were related (see Table 3 for means). The analysis indicated that for participants who formed initial negative impressions, their recall of the morality-related information was similar after processing contradictory information (M = 2.41) or neutral information (M = 2.71), $p < .41$. The recall of competence-related information was also similar after processing contradictory information (M = 2.20) or neutral information (M = 2.26) at Stage 2, $p < .82$. Moreover, there was no interaction of domain and the type of information processed at Stage 2, $F(1, 32) < 1.00$.

Similar analyses were conducted on the memory scores of participants who formed initial positive impressions. The analysis indicated that participants' recall of morality-related information differed after processing contradictory (M = 1.76) compared with neutral information (M = 2.56), $p < .06$. Recall for the competence-related information also differed after processing contradictory (M = 1.09) compared with neutral information (M=1.94), $p < .02$. There was no interaction of domain and the type of information processed at Stage 2, $F(1, 32) < 1.00$. Also consistent with a morality dominates perspective, other effects from the overall analysis indicated that there was the tendency to show better memory for the morality- (M = 2.35) than the competence-related information (M = 1.87), $F(1, 64) = 8.49$, $p < .005$.

DISCUSSION

Consistent with the proposed impression change processes of adaptation and isolation, the findings of Experiment 2 indicated that the processing of subsequent information relevant to an initial impression interfered with the ability to retrieve information when the impression was based on positive but not negative behavioral information. Thus, presenting contradictory information increases the difficulty of retrieving the earlier learned information for initial positive impressions. These findings provide additional support for the idea that people's impres-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

sions, when based on positive behavioral information, may "adapt" to subsequently processed information to a greater degree than initial negative impressions. People who have formed initial negative impressions, due to being able to pinpoint the target's dispositional qualities in their behavior, are more likely to isolate their initial impressions and not integrate them with subsequently processed information. The memory patterns were found to be equivalent across the morality and competence domains. The only effect involving the domain factor was a main effect, which indicated that participants were better able to remember the target's actions related to morality than to competence.

It might be argued, consistent with the present analysis, that people draw stronger dispositional inferences from negative than positive behavior. These inferred traits might provide stronger retrieval cues for negative compared with positive behaviors. Such an account would be consistent with explanations of negativity effects in memory, as discussed in the introduction to this experiment, and would be consistent with the results from the conditions in which participants formed initial negative impressions. However, such an explanation still cannot account for the effects obtained in the conditions in which participants formed initial positive impressions. In these conditions, participants were asked to recall only the positive behavioral information and not any negative information. Yet the findings showed decreased performance in the experimental condition. The existence of stronger retrieval cues for negative behaviors should not matter when people are trying to remember the oppositely valenced behaviors. At the very least, it would have to be argued that the presence of such cues produced interference, which was the point of the present experiment.

EXPERIMENT 3

The final experiment was conducted to provide additional evidence for the purported asymmetry in information integration depending on the favorability of initial impressions. Specifically, if people represent their impressions in memory according to the processes of isolation and adaptation, it should be possible to examine how the information (both Stage 1 and Stage 2) is organized as a function of which type of behaviors served as the basis for the impression. In such a paradigm, the comparisons would no longer be between an experimental group and its respective control group but between the experimental groups themselves. For instance, evidence for isolation would be obtained by showing that people in their recall protocols segregate the negative behaviors that they first learned from the subsequently processed impression-inconsistent (positive) behaviors. Evidence for adaptation would be provided by showing

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

that no segregation between negative and positive behaviors occurs when people process positive behavioral information to form their initial impressions. In terms of participants' recall protocols, these processes could be indexed by determining the amount of clustering in memory. Specifically, an isolation process would be expected to produce more clustering (negative behaviors kept separate from the positive behaviors) in the recall protocols than an adaptation process. Experiment 3 was designed to examine the extent to which clustering of the different behaviors would occur as a function of whether participants processed negative or positive behaviors in forming their initial evaluative impressions.

METHOD

Design and Participants. Thirty-six students were given course credit for their participation. Similar to Study 2, participants either formed first impressions based on positive or negative behavioral information, and then they were presented with contradictory behavioral information. In this study, though, they were later asked to recall both the positive and negative behaviors. Thus, the design of the study was a 2 (initial impression; positive vs. negative) $\times$ 2 (behavior recalled; originally learned, subsequently learned) mixed design, the latter factor varying within participants. Participants were randomly assigned to one of two between participants' conditions and were run in non-interacting groups of two to four.

Materials and Procedure. The behavioral stimuli used in Experiment 2 were used in this experiment. The procedure was also the same, save for minor changes. In the present experiment, the control conditions were not used, as participants in the two conditions were asked to recall all of the behavioral information with which they had been presented. The presentation of the materials was the same, forming an initial impression that was based either on negative or positive behavioral information at Stage 1. At this point, participants were presented with Stage 2 information that contradicted their preliminary impressions. People who formed negative preliminary impressions were presented with positive behaviors at Stage 2; people who formed positive preliminary impressions were presented with negative behaviors at Stage 2. After completing their impressions and the interpolated task, participants were presented with the recall task. They were instructed to recall as many of the behaviors as possible, from both Stage 1 and Stage 2, in whatever order they came to mind. They were given four minutes to work on the recall task and were then completely debriefed and thanked for their participation.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

TABLE 4. Mean Recall of Originally Learned and Subsequently Learned Information as a Function of the Valence of the Behavioral Basis of the First Impression.

	Initial Impression			
	Positive		Negative	
Behaviors recalled	*M*	*SD*	*M*	*SD*
Originally learned	3.83	1.55	4.55	1.98
Subsequently learned	3.36	1.39	3.53	1.83

RESULTS

RECALL

In order to assess clustering in memory, participants were asked to recall all of the information with which they were presented. As a consequence, it is impossible to assess "true" retroactive interference, that is, participant's ability to retrieve only the earlier learned information. Nevertheless, specific comparisons still allow for inferences about retroactive interference to be made.

The same recall scoring procedure used in Experiment 2 was used in the present study. Table 4 presents the means for recall as a function of initial impression condition. The recall data were submitted to a 2 (initial impression; positive vs. negative) × 2 (behavior recalled; originally learned, subsequently learned) mixed design ANOVA, with repeated measures on the latter factor. The analysis yielded a main effect for type of behavior recalled, $F(1, 34) = 6.89$, $p < .01$, indicating that originally learned behaviors (i.e., those that served as the basis of the initial impression) were better recalled than subsequently learned behaviors, consistent with research showing that earlier information is given more attention than later learned information (e.g., Belmore, 1987). Although the interaction of the two factors was not reliable, the comparison of memory for the initially learned information indicated greater recall in the initial negative impression ($M = 4.55$) than the initial positive impression condition ($M = 3.83$), $F(1, 34) = 3.19$, $p < .05$ (one-tailed, based on previous support of hypothesis), consistent with the proposed asymmetric occurrence of retroactive interference as a function of the favorability of the initial impression.

An analysis was also conducted to determine the extent to which memory varied as a function of behavior domain and the two factors examined in the first analysis (see Table 5 for means). This analysis produced a main effect for Domain as found in Study 2, $F(1, 34) = 10.34$, $p < .003$, indicating that morality-related behaviors were better recalled than

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

TABLE 5. Mean Recall of Originally Learned and Subsequently Learned Information as a Function of the Valence of the Behavioral Basis of the First Impression and Behavioral Domain.

	Initial Impression							
	Positive				Negative			
	Morality		Competence		Morality		Competence	
Behaviors recalled	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Original	2.50	.92	1.33	.98	2.36	1.27	2.19	1.04
Subsequent	1.86	.80	1.50	.98	1.94	1.35	1.58	.94

competence-related behaviors. The other effect to emerge from the analysis was the interaction of Valence × Initial impression condition, $F(1, 34) = 6.89$, $p < .01$. This effect is an expression of the main effect reported in the first analysis having to do with memory for originally learned and subsequently learned behaviors. The analysis also produced an interaction of Domain × Valence, $F(1, 34) = 3.79$, $p < .06$. This effect indicates that overall the recall of immoral and incompetent behaviors did not differ ($M = 2.11$ vs. $M = 1.84$, $p < .18$), whereas the recall of moral behaviors was greater than the recall of competent behaviors ($M = 2.22$ vs. $M = 1.45$, $p < .001$). It is important to point out the high recall of positive morality-related behaviors in the initial positive impression condition. This effect is inconsistent with expectations. However, it should be noted that the three-way interaction was not reliable, $F(1, 34)$ 1.42, $p < .24$. Further, this result differs from the findings from the previous two studies (asymmetry in belief change and interference).

CLUSTERING IN MEMORY

The adjusted ratio of clustering (ARC, Roenker, Thompson, & Brown, 1971) was used to determine the amount of clustering in the participants' recall protocols as a function of the behaviors' valence. An ARC score of 1 indicates perfect clustering (e.g., all negative behaviors recalled together and all positive behaviors recalled together); an ARC score of 0 indicates chance clustering; and a negative ARC score indicates less than chance clustering. Eight participants were dropped from the analysis because they recalled fewer than two of either type of behavior. The ARC scores were submitted to a two-level (initial impression) between participants' comparison. If isolation occurred in memory for people who formed initial negative impressions, it would be expected that they would tend to cluster and keep separate the negative from the positive

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

behaviors. And if adaptation occurred for people who formed initial positive impressions, it would be expected that they would not cluster the positive and negative behaviors by their valence. The results were consistent with the hypothesis, $F(1, 26) = 4.54$, $p < .04$. There was a greater degree of clustering produced by participants who formed initial negative impressions ($M = .26$) than participants who formed initial positive impressions ($M = -.12$).

The amount of clustering was also examined as a function of domain (morality and competence) and as a function of the degree to which participants might have organized their memory as a function of valence × domain (four category combinations). With regard to the first analysis, there was no discernible clustering by domain across the initial negative and positive impression conditions ($M = .11$ and $M = .06$, respectively), $F(1, 26) < 1.00$. With regard to the second analysis, very few participants ($n = 9$) recalled two items from each of the four types of categories, which precluded an adequate comparison. The analysis performed on the scores of these nine participants produced no difference as a function of initial impression condition ($M = .16$ and $M = .11$). The clustering findings indicate that participants used the favorability of the behavioral information as the dominant dimension to structure their impressions.

DISCUSSION

The results of Experiment 3 provided a conceptual replication of Experiment 2 by showing that people who formed initial impressions based on positive behavioral information were less able to recall the behaviors that formed the basis of that impression than people who formed first impressions based on negative behavioral information. It was suggested that the findings showing that negative impressions suffer less retroactive interference than positive impressions were consistent with the ideas of isolation and adaptation in memory (Hertel, 1985). The clustering data provided evidence for this characterization of how people represent negative and positive person impressions. People who formed initial negative impressions appeared to keep separate the information on which the initial impression was based from subsequent information. People who formed initial positive impressions appeared less able to separate the positive information upon which those impressions were based from subsequently processed negative information. These effects were not dependent on the behavioral domain to which the target's behaviors were related.

Given that in this study all participants processed information that was inconsistent with their first impressions, it is important to discuss why the inconsistent information was not well recalled. Research in per-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

son memory has found that expectancy-inconsistent information is generally better remembered than expectancy-consistent information (e.g., Hastie & Kumar, 1979; Srull, 1981; see Stangor & McMillan for a review of limiting conditions). However, given that the paradigm used in those studies differs in important ways from the one used in the present study, there are probably various processes that work against an incongruity effect under the present conditions. First, people may be more apt to test expectancies provided to them by experimenters than those that they have personally formed, as they did in the present study (cf. Stangor & Ruble, 1989). Second, there is an overall primacy effect in memory in this study, consistent with research that has examined attention to information as a function of list position (Belmore, 1987). The greater attention given to the earlier learned information may reduce the extent to which the subsequently processed, impression-inconsistent information is elaborated. Finally, in the typical person memory study, expectancy-inconsistent information is processed along with expectancy-consistent information early on in the presentation, not just in the second half of the impression formation phase. Person memory studies that have looked at incongruity encoding as a function of list position have found that incongruent recall is reduced for items that occur later in the presentation (Belmore, 1987). Thus, for various reasons, it appears that impression-inconsistent information in the current studies should not necessarily enjoy a recall advantage.

The reasons that underlie why expectancy-inconsistent information did not enjoy a recall advantage over consistent information also serve as adequate reasons for the difference between the present clustering results and those obtained by other researchers in person memory (e.g., Srull, 1981). In some studies, such as those described above, it has been shown that people do not cluster the information by type of behavior (consistent or inconsistent, positive or negative). Instead, the conditional probabilities assessed in such studies have shown an asymmetry, as consistent behaviors are more likely to be recalled given the recall of an inconsistent behavior than vice versa. As noted earlier, there are many differences between the paradigm used in the present study and those used in other studies of person memory. Further, it is important to note that other research that has used a paradigm similar to the present one (e.g., beliefs are not induced prior to forming impressions) has found clustering overall as a function of the categories represented in the behavioral information (Hamilton, Katz, & Leirer, 1980).

The current research extends these findings by showing that the nature of the initial impression helps to determine whether or not interference, and as a consequence, clustering occurs. Initial positive impressions, by adapting subsequent information, lead to the creation of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

linkages among the behavioral items, which may underlie the lack of clustering. In contrast, initial negative impressions, by remaining isolated from subsequently processed information, reduce the chances that such interfering linkages will be created. This allows the clustering by information type to be expressed. Although associations or linkages in memory can provide alternative paths from which to retrieve information (Srull, 1981), they may also lead to the opposite outcome. This is the case because there is a limited amount of activation in any associative net, so the greater availability of associations can also decrease the activation available for any one path, thus reducing the chances that any item is retrieved from memory. This is the typical explanation given for retroactive interference (Anderson, 1985).

GENERAL DISCUSSION

The findings obtained in the present research indicate that positive and negative behaviors induce different approaches to impression formation, and as a consequence, impression revision processes. Because positive behavior tends not to allow the perceiver to determine the dispositional qualities of the target performing the behavior, people remain open (Kruglanski, 1989) in their information processing and are more likely to adapt (integrate) subsequent information into their initial impressions (also see Ybarra et al., 1999). If the subsequently processed information is inconsistent with the initial impression, it may modify the meaning of the impression and establish interfering links in memory (between positive and negative behaviors). These consequences might reduce the chances that people can later bring to mind the impression itself or the information that serves as the basis of initial positive impressions. In contrast, because negative person information tends to allow people to pinpoint the dispositional qualities of the target, people are less likely to remain open in their processing of subsequent information and appear to isolate their initial impressions (Ybarra et al., 1999). This reduces the chances that previously learned information will make contact with subsequently processed information. The decreased chances of contact decreases the likelihood that new information will alter the initial impression. Further, the potential for new information to interfere with subsequent retrieval of the informational basis of negative first impressions is reduced.

At some level, the present analysis (also see Ybarra, in press) is consistent with a lay epistemic view of social information processing (Kruglanski, 1989). The favorability of the initial impression either induces a more "open" or "closed" approach to subsequent information. Although it is appealing to describe the present results according to this

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

simpler single process than the two processes of adaptation and isolation, there are benefits to relying on the view of impression change provided by the present analysis.

First, the processes of adaptation and isolation have been used by researchers in cognitive psychology to characterize interference processes (Hertel, 1985). Second, as will be discussed presently, similar characterizations have been used in the stereotyping literature to describe how social representations of groups change in response to disconfirming information. Finally, it may not necessarily be the case that because an initial impression remains "open" interference will result. For example, in the present research, participants should have determined that they would be receiving additional information about the target after Stage1 of their impressions. Nevertheless, participants who formed initial negative impressions appeared to segregate the initial impression information from subsequently processed information. It might be useful in future research to manipulate both the nature of the initial impression participants form and the sense that they have or have not "closed" off an impression, and then assess degree of impression change and interference in memory.

IMPRESSION REVISION AND THE BELIEF CHANGE MODELS

The present research has served to highlight the psychological processes involved in the revision of evaluative impressions. Although the process by which people modify individual impressions probably differs from the process by which they modify group representations, there is some resemblance between the processes of adaptation and isolation and the processes discussed as contributing (or not contributing) to stereotype change, namely bookkeeping and subtyping (Weber & Crocker, 1983). With bookkeeping, stereotype-inconsistent information, if dispersed across several group members, is integrated into an extant representation of a social group and modifies it accordingly. With the process of subtyping, when belief-inconsistent information is restricted to only a few group members, it is thought not to be integrated into the stereotype but to be re-fenced or separated from it, thus leaving the original belief in tact. If there is anything more than a surface resemblance between these two sets of processes, the findings of the present research may have implications for models of belief change. For example, bookkeeping may be more likely to occur for positively valenced beliefs, whereas subtyping may be more likely to occur for negatively valenced beliefs. It is interesting to note that research in the stereotyping literature suggests that negative stereotypes of social groups tend to persist even in the face

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of disconfirming evidence more than positive stereotypes do (Hewstone, 1989). Such findings may reflect the process of isolation, whereby disconfirming information is less likely to be processed and is thus kept separate from a belief when negative beliefs of social groups are guiding information processing.

IMPLICATIONS FOR SOCIAL INFORMATION PROCESSING

The processes of adaptation and isolation posited to occur when people form positive and negative impressions, respectively, have other implications for information processing. By remaining isolated and unmodified by subsequently processed information, negative impressions of others may have a greater likelihood than positive impressions of continuing to influence how information about that person is processed. Available representations play a major role in guiding what information is selected for further processing, often in a confirmatory fashion (Hamilton, Sherman, & Ruvolo, 1990; Snyder & Swann, 1978; Stephan, 1985). This suggests that negative impressions may be more likely than positive impressions to result in self-fulfilling prophecies, or at least some element of them (e.g., perceptual confirmation), (cf. Snyder & Stukas, 1999). Thus, not only may negative first impressions be less open to adjustment than positive impressions, they may also persist in guiding information processing in a way that assures their existence.

It is important to discuss briefly earlier work on impression revision by Reeder and Coovert (1986). According to Reeder and Coovert (1986), change in impressions is brought about by informational violations. Although the degree to which information is regarded to be inconsistent with the impression is determined by the initial impression, the characterization of this process is passive: The impression, if subsequent information is deemed inconsistent enough, is compelled into reorganization. However, according to the present analysis, the basis of an impression induces different approaches to how subsequent information is processed. Forming a positive or negative impression makes people more or less likely to adapt subsequent information into an impression or to isolate the impression from the information.

With regard to the influence of the morality and competence dimensions, there is the tendency at times to characterize these two domains as opposites (one produces negativity, whereas the other produces positivity). Such a characterization of these informational domains may be limited for different reasons. Many times, the information we receive about others is a mix of morality- and competence-related information. As demonstrated in this research, and consistent with other findings in

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

social perception, when a mix of information is processed, negativity effects tend to be obtained. This should be expected given that the morality category appears to be more chronically accessible in people's minds than is the competence category and is also more likely to dominate impressions (Chan & Ybarra, 2001; Wojciszke et al., 1998; Ybarra & Chen, 2000). However, there are conditions when positivity effects should occur. For example, if competence-related information is the only information available for processing, people should rely on their lay theories for making inferences in this domain. Under such conditions, positive person information should appear more diagnostic.

CONCLUSION

A long-standing idea in person perception research is that impressions of others are longlasting. An important distinction in the types of impressions people can form of others is whether those impressions are based on negative or positive behavioral information. The present research suggests that negative and positive first impressions differ in the extent to which they remain isolated from or adapt to subsequently processed information, processes that have implications for the likelihood that person impressions and their underlying evidentiary base will persist in light of potentially disconfirming evidence.

REFERENCES

Anderson, J. R. (1985). *Cognitive psychology and its applications*. New York. W. H. Freeman.

Anderson, N. H. (1965). Primacy effects in personality impression formation using a generalized order effect paradigm. *Journal of Personality and Social Psychology, 2*, 1-9.

Asch, S. E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology, 41*, 1230-1240.

Belmore, S. M. (1987). Determinants of attention during impression formation. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 13*, 480-489.

Benet, V., & Waller, N. G. (1995). The big seven factor model of personality description: Evidence for its cross-cultural generality in a Spanish sample. *Journal of Personality, 69*, 701-718.

Birnbaum, M. H. (1972). Morality judgments: Tests of an averaging model. *Journal of Experimental Psychology, 93*, 35-42.

Briscoe, M. E., Woodyard, H. D., & Shaw, M. E. (1967). Personality impression change as a function of the favorableness of the first impressions. *Journal of Personality, 35*, 343-357.

Carlston, D. E. (1980). The recall and use of traits and events in social inference processes. *Journal of Experimental Social Psychology, 16*, 303-328.

Chan, E., & Ybarra, O. (2001). *Determinants of misanthropic and philanthropic memory: The role of the interaction goals of cooperation and competition*. Manuscript submitted for publication.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

De Bruin, E. N. M. & Van Lange, P. A. M. (1999). Impression formation and cooperative behavior. *European Journal of Social Psychology, 29,* 305-328

De Bruin, E. N. M. & Van Lange, P. A. M. (2000).What people look for in others: Influences of the perceiver and the perceived on information selection. *Personality and Social Psychology Bulletin, 26,* 206-219.

Fiske, S. T. (1980). Attention and weight in person perception: The impact of negative and extreme behavior. *Journal of Personality and Social Psychology, 38,* 889-906.

Fiske, S. T. (1992). Thinking is for doing: Portraits of social cognition from Daguerreotype to laserphoto. *Journal of Personality and Social Psychology, 63,* 877-889.

Gollwitzer, P. M., & Moskowitz, G. B. (1996). Goal effects on action and cognition. *Social psychology: Handbook of basic principles* (pp. 361-399). New York: Guilford Press.

Hamilton, D. L., & Huffman, L. J. (1971). Generality of impression formation processes for evaluative and nonevaluative judgments. *Journal of Personality and Social Psychology, 20,* 200-207.

Hamilton, D. L., Katz, L. B., & Leirer, V. O. (1980). Cognitive representation of personality impressions: Organizational processes in first impression formation. *Journal of Personality and Social Psychology, 39,* 1050-1063.

Hamilton, D. L., Sherman, S. J., & Ruvolo, C. M. (1990). Stereotype-based expectancies: Effects on information processing and social behavior. *Journal of Social Issues, 46,* 35-60.

Hamilton, D. L., & Zanna, M. (1972). Differential weighting of favorable and unfavorable attributes in impressions of personality. *Journal of Experimental Research in Personality, 6,* 204-212.

Hastie, R. & Jumar, P. A. (1979). Person memory: Personality traits as organizing principles in memory for behavior. *Journal of Personality and Social Psychology, 37,* 25-38.

Heider, F. (1944). Social perception and phenomenal causality. *Psychological Review, 51,* 358-374.

Heider, F., & Simmel, M. (1944). An experimental study of apparent behavior. *American Journal of Psychology, 57,* 243-259.

Hendrick, C., & Costantini, A. F. (1970). Effects of varying trait inconsistency and response requirements on the primary effect in impression formation. *Journal of Personality and Social Psychology, 15,* 158-164.

Hertel, P. T. (1985). Isolation and adaptation in passage memory. *Discourse Processes, 8,* 75-90.

Hewstone, M. (1989). Changing stereotypes with disconfirming information. In Bar-Tal, D., Graumann, C.F., Kruglanski, A.W., Stroebe, W. (Eds.), *Stereotyping and prejudice: changing conceptions* (pp. 37-59). New York: Springer-Verlag.

Hunter, I. M. L. (1957). *Memory.* Baltimore: Penguin Books.

Jones, E. E., & Gerard, H. B. (1967). *Foundations of social psychology.* New York: Wiley.

Kanouse, D. E., & Hanson, L. R., Jr. (1972). Negativity in evaluations. In E. E. Jones, D. E. Kanouse, H. H. Kelley, R. E. Nisbett, S. Valins, & B. Weiner (Eds.), *Attribution: Perceiving the causes of behavior* (pp. 47 - 62). Morristown, NJ: General Learning Press.

Klatzky, R. L. (1975). *Human memory: Structures and processes.* San Francisco: Freeman.

Kruglanski, A.W. (1989). *Lay epistemics and human knowledge.* New York: Plenum.

Leslie, A. M. (1994). Tomm, Toby, and agency: Core architecture and domain specificity. In L. A. Hirschfeld and S. A. Gelman (Eds.), *Mapping the mind: Domain specificity in cognition and culture* (pp. 119-148). Cambridge: Cambridge University Press.

Lingle, J. H., Ostrom, T. M. (1979). Retrieval selectivity in memory-based impression judgments. *Journal of Personality and Social Psychology, 37,* 180-194.

Martijn, C., Spears, R., Van der Pligt, J., & Jakobs, E. (1992). Negativity and positivity effects in person perception and inference: Ability versus morality. *European Journal of Social Psychology, 22,* 453-463.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Miller, J. (1984). Culture and the development of everyday social explanation. *Journal of Personality and Social Psychology, 46*, 961-978.

Peeters, G., & Czapinski, J. (1990). Positive-negative asymmetry in evaluations: The distinction between affective and informational negativity effects. *European Review of Social Psychology, 1*, 33-60.

Pratto, F., & John, O. P. (1991). Automatic vigilance: the attention-grabbing power of negative social information. *Journal of Personality and Social Psychology, 61*, 380-391.

Reeder, G. D., & Brewer, M. B. (1979). A schematic model of dispositional attribution in interpersonal perception. *Psychological Review, 86*, 61-79.

Reeder, G. D., & Coovert, M. D. (1986). Revising an impression of morality. *Social Cognition, 4*, 1-17.

Reeder, G D., & Spores, J. M. (1983). The attribution of morality. *Journal of Personality and Social Psychology, 44*, 736-745.

Roenker, D. L., Thompson, C. P., & Brown, S. C. (1971). Comparisons of measures for the estimation of clustering in free recall. *Psychological Bulletin, 76*, 45-48.

Rosenberg, S., Nelson, C, & Vivekananthan, P. S. (1968). A multi-dimensional approach to the structure of personality impressions. *Journal of Personality and Social Psychology, 9*, 283-294.

Rothbart, M., & Park, B. (1986). On the confirmability and disconfirmability of trait concepts. *Journal of Personality and Social Psychology, 50*, 131-142.

Schul, Y., Burnstein, E., & Bardi, A (1996). Dealing with deceptions that are difficult to detect: Encoding and judgment as a function of preparing to receive invalid information. *Journal of Experimental Social Psychology, 32*, 228-253.

Skowronski, J. J., & Carlston, D. E. (1987). Social judgment and social memory: The role of cue diagnosticity in negativity, positivity, and extremity biases. *Journal of Personality and Social Psychology, 52*, 689-699.

Snyder, M., & Stukas, A. A. (1999). Interpersonal processes: The interplay of cognitive, motivational, and behavioral activities in social interaction. *Annual Review of Psychology, 50*, 273-303.

Snyder, M. & Swann, W. B. (1978). Hypothesis-testing processes in social interaction. *Journal of Personality and Social Psychology, 36*, 1202-1212.

Srull, T.K. (1981). Person memory: Some tests of associative storage and retrieval models. *Journal of Experimental Psychology: Human Learning and Memory, 7*, 440-462.

Stangor, C., & McMillian, D. (1992). Memory for expectancy-congruent and expectancy-incongruent information: A review of the social and social developmental literatures. *Psychological Bulletin, 111*, 42-61.

Stangor, C., & Ruble, D. N. (1989). Stereotype development and memory: What we remember depends on how much we know. *Journal of Experimental Social Psychology, 25*, 18-35.

Stephan, W. G. (1985). Intergroup relations. In G. Lindzey & E. Aronson (Eds.), *Handbook of Social Psychology* (Vol. 3, pp. 599-658). New York: Addison-Wesley.

Stewart, R. H. (1965). Effect of continuous responding on the order effect in personality impression formation. *Journal of Personality and Social Psychology, 1*, 161-165.

Weber, R., & Crocker, J. (1983). Cognitive processes in the revision of stereotypic beliefs. *Journal of Personality and Social Psychology, 45*, 961-977.

Wellman, H. M. (1990). *The child's theory of mind*. Cambridge, MA: MIT Press.

Wojciszke, B., Bazinska, R., & Jaworski, M. (1998). On the dominance of moral categories in impression formation. *Personality and Social Psychology Bulletin, 24*, 1251-1263.

Wyer, R. S. (1970). Information redundancy, inconsistency, and novelty and their role in impression formation. *Journal of Experimental Social Psychology, 6*, 111-127.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Wyer, R. S., & Gordon, S. E. (1982). The recall of information about persons and groups. *Journal of Experimental Social Psychology, 18,* 128-164.

Ybarra, O. (2001). *Naïve causal understanding of valenced and its implications for social information processing.* Manuscript submitted for publication. University of Michigan, Ann Arbor, MI.

Ybarra, O., & Chan, E., & Park, D. C. (2001). Young and old adults' concerns with morality and competence. *Motiviation and Emotion, 25,* 85-100.

Ybarra, O., & Chen, S. (2000). Unpublished raw data. University of Michigan, Ann Arbor.

Ybarra, O., & Stephan, W. G. (1996). Misanthropic person memory. *Journal of Personality and Social Psychology,* 70, 691-700.

Ybarra, O., & Stephan, W. G. (1999). Attributional orientations and the prediction of behavior: The attribution-prediction bias. *Journal of Personality and Social Psychology, 76,* 718-727.

Ybarra, O., Schaberg, L., & Keiper (1999). Favorable and unfavorable target expectancies and social information processing. *Journal of Personality and Social Psychology, 77,* 698-709.

Yzerbyt, V.Y. & Leyens, J. P. (1991). Requesting information to form an impression: The influence of valence and confirmatory status. *Journal of Experimental Social Psychology, 27,* 337-356.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.