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Beyond chess :: the effects of anger on person perception.

Daniel Shapiro
University of Massachusetts Amherst

BEYOND CHESS: THE EFFECTS OF ANGER ON PERSON PERCEPTION

A Thesis Presented

by

DANIEL L. SHAPIRO

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DANIEL L. SHAPIRO

Approved as to style and content by:

Susan T. Fiske, Chair

Marian MacDonald, Member

Margaret Stephenson, Member

Melinda Novak, Department Head
Psychology

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ABSTRACT

BEYOND CHESS: THE EFFECTS OF ANGER ON PERSON PERCEPTION

May 1997

DANIEL L. SHAPIRO, B.A., JOHNS HOPKINS UNIVERSITY

M.S., UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor Susan T. Fiske

An experiment examined the effects of anger on people's information processing strategies regarding a target they had already individuated. Participants read information about an alleged female student, were induced into either a neutral or angry affective state, and rated the target on several trait dimensions. In general, affect influenced both recall speed and the extremity of ratings about a person *one had already individualized.* More specifically, the results of the study suggest that angered ingroup participants (other females) rate an ingroup target faster and less extremely than neutral ingroup participants; conversely, angered outgroup participants (males) rate a target more slowly and more extremely than neutral outgroup participants.

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CHAPTER I

INTRODUCTION

A Quote From the Reigning World Chess Champion

> Every computer has a fixed set of priorities. The safety of the king, active pieces, open diagonals and so forth. We humans don't have in our heads a fixed list; we feel the most important things to evaluate.

This quote is by Gary Kasparov, the reigning world chess champion, describing his latest chess challenge: An IBM technician following instructions from the world's most sophisticated chess machine (New York Times, Feb. 1996, A27:2).

The Coffee Shop: An Example of the Role of Anger in Perception

A young man of some intelligence and sophistication recently described an incident he experienced at a coffee shop while on a blind date. He met his date at a predesignated area of the coffee shop and, before even greeting her, immediately noted that she looked like a very warm, sensitive woman. To break the initial awkwardness of their meeting, he suggested that they play chess; she agreed. Two hours of intense competition commenced, in which he discovered, contrary to his initial impression, that although she was charismatic, she certainly was not sensitive. In fact, in the middle of a close game, she muttered in passing that she thought he cheated. Agitated by the critical comment, he responded sharply, and a back-and-forth volley of bickering ensued. As they became increasingly flustered and flared, they fired more and more insults and jabs at each other: She called him a "typical lying male," and he responded by calling her an "irrational, oversensitive woman." Suddenly, the manager of the coffee house appeared at their table and quietly asked them to leave. They immediately apologized for the commotion, looked at each other, and puzzled over what overwhelming force influenced their irrational antics.

The present paper attempts to reconcile the confusion felt by this man and his date by illuminating the role anger plays in how we perceive others. When angry at someone such as a friend, date, or spouse, do many of us neglect our personalized notions about that person and instead draw on negative stereotypic information? Why?

The Shift of Focus: The Role of Affect on Attribute-Based Information

In many everyday circumstances, people can choose from a wide range of information processing strategies for making social judgments, including effortful analytic processing and effort-minimizing strategies (Bless, Hamilton, & Mackie, 1992; Fiske & Neuberg, 1990; Forgas, 1992b). However, anger and other high-arousal emotions may reduce the accessibility of certain information processing strategies, clouding cognitions and subsequent perceptions of individuated others. For example, anger may have influenced the young man and his date to ignore their interdependent goals (Ruscher & Fiske, 1990) and unique, individualized views of one another and resort to stereotypic judgments.

While several researchers (e.g., Bodenhausen, Sheppard, & Kramer, 1994; Paulhus & Lim, 1994) who study the impact of affect on social judgments have tried to empirically answer the question, "If a person is experiencing a specific type of affect, how will social information be *initially* processed?", the present study attempts to answer the question, "If a person *already has* an individualized, attribute-based view of another person, how does anger affect retrieval of that information?" (See Table 1.)

Table 1. Comparison of paradigms for studying person perception and social judgment.

1. Affect induction--->Individuating/Categorical Information Stored--->Task--->Information Recalled
2. Individuating/Categorical Information Stored--->Affect Induction--->Task--->Information Recalled

Note. Method 1 is the typical paradigm, whereas Method 2 is the paradigm used in the present study.

Specifically, the present paper investigates how anger affects retrieval of attribute-based and stereotypic information. To first set the stage for understanding retrieval of memories about others, contemporary models of information-processing that relate to affect are reviewed, and limitations of the models are discussed. Second, a theoretical explanation of the relationship between negative emotional arousal and memory retrieval processes is proposed, and the role of anger in memory retrieval processes is illustrated. Third, five hypotheses are proposed and an experimental method is described to test specific relationships between anger and the recall of categorical and attribute-based information. Lastly, the results of the experiment are reported and discussed.

Definitions of Terms

Because research on affect has been investigated from many different theoretical perspectives (e.g., see Russell & Fehr, 1994), it is important to clearly define certain terms used throughout this paper. Affect is a broad, generic term that refers to moods, emotions, preferences, and evaluations (Fiske & Taylor, 1991). Moods are enduring, low-intensity mental states with no salient causal target (Fiske & Taylor, 1991; Forgas, 1992a, p.230). In other words, moods are general feeling states (e.g., feeling good or feeling lousy) and are not typically directed toward an individual. Emotional arousal refers to a cognitive state that is accompanied by physiological arousal (i.e., activation of the sympathetic nervous system) and the perception of that arousal (Berscheid, 1983). For example, according to some theorists (e.g., Bersheid, 1983), for angry individuals to be considered emotionally aroused, they must have a racing heartbeat, realize their heart is racing, and think they are angry and in a state of displeasure. Neither physiological arousal nor a cognitive state alone constitutes emotional arousal. As shown by pancultural research (Osgood, May, & Miron, 1975), these qualifications on the definition of emotional arousal, particularly the dimensions of displeasure and arousal, are fairly universal.

A distinction also needs to be made between categories, schemas, attributes, individuated information, and stereotypes. Categories refer to cognitive structures that contain examples or prototypes of people, social roles, and social situations; categories reduce the complexity of the world by allowing one to apply general knowledge and expectations without the need for confirmation and validation (Fiske & Pavelchak, 1986). Examples of categories include men, women, Caucasians, African-Americans, Jews, and Christians. A schema is an organization of generic knowledge about a concept or category that can be applied to the understanding of new information (Fiske & Taylor, 1991). Schemas are organized through a network of associated elements all having a strong link to a categorical label and weaker links to one another (Crockett, 1988; Fiske & Pavelchak, 1986). The weaker links connected to the categorical label are attributes, which can be either category-consistent or category-inconsistent. Category-consistent attributes support the meaning of the category. For example, before meeting his date, the young man at the restaurant noted that his date seemed sensitive, a quality consistent with his categorical expectation of women. On the other hand, category-inconsistent attributes allow unexpected, discrepant information to

be processed, thereby making possible unique, individuated perceptions of others. Thus, the young man developed an individualized perception of his date upon noting her confrontational style of behavior, an attribute inconsistent with his conception of women in general. Because a category has more and stronger links to the attributes than they do with each other, the category will play a more influential role than any single attribute (Fiske & Pavelchak, 1986). Stereotypes are schemas that contain culturally- or socially-determined descriptions and expectations of people, social roles, and social situations; stereotypes can be positive, negative, or neutral in valence. In Western societies, for example, women are stereotypically perceived as nurturing, while men are stereotypically viewed as agentic. Stereotypes allow people quickly and easily to infer attributes for others based on meaningful categories (Macrae, Milne, & Bodenhausen, 1994). Generally, social stereotypes are well-developed categories (Fiske & Neuberg, 1990), and the information contained within them is more likely to be recalled than the weakly-linked category-inconsistent information (O'Sullivan & Durso, 1984; Stangor & McMillan, 1992).

Not All That Seems Rational Is Rational:
Modeling the Effects of Emotions on Person Perception and Social Judgment

Researchers have long focused on the effects of affect on person perception and social judgment (e.g., Bruner & Tagiuri, 1954; Razran, 1940), although most work has been accomplished within the past decade or so (Forgas, 1995). Specifically, most work recent work examines the development of comprehensive theoretical models that account for the complexity of affective and cognitive influences on perception and judgment. Fiske and Neuberg (1990) provide a continuum model of impression formation, which suggests that when forming impressions, people initially automatically categorize others. When motivated to attend to the other person, they attempt to confirm the categorization by attending selectively to expectancy-consistent information. If the categorization confirmation is not successful, they attempt to recategorize the person, generating a new type of category or a subcategory. When people find it cumbersome to recategorize, they proceed piecemeal, attribute by attribute, through the data (Fiske & Taylor, 1991). Essentially, when motivated to individuate someone, people move away from categorical impressions, attending increasingly to expectancy-consistent and -inconsistent attributes. Moderating variables between these polar strategies of impression formation include an accuracy motive, in which one

strives for an accurate impression of another (e.g., because of interdependent goals), and cognitive overload, in which limited cognitive capacity provides mental limitations on the extent of impression formation.

Although the Fiske and Neuberg (1990) model offers little explicit mention of the role of affect on social perceptions and judgments, one can extrapolate from their model several points along the continuum at which affect influences people's impression formation strategies. Research suggesting that affect affects the accessibility of cognitive categories has strong implications for impression formation (e.g., Fiske & Neuberg, 1990). The degree of accessibility of social categories available to a perceiver can influence which of many categories is used to perceive a target (Fiske & Neuberg, 1990). One factor that influences accessibility of social categories is affect: Categories are more likely to be accessed when one is in a mood cognitively linked with that category (Bower, 1981; Isen, 1984). For example, when a person is in a positive mood, targets will typically be categorized with respect to their positive features (Erber, 1985, in Fiske & Neuberg, 1990). As noted , once categorization of a target has occurred, motivation determines where along the continuum people halt information processing. High levels of goal-related emotional arousal often correspond with high levels of motivation toward reaching that goal. That is, people who are emotionally invested in goals often feel concomitant motivation for reaching those goals. For example, a woman attracted to a man and interested in meeting him -- thus having goal-related emotional arousal -- would possess more motivation and understand his unique attributes than a woman who experiences no such emotional arousal. However, extremely high or low levels of emotional arousal may undercut movement toward piece-meal processing. For instance, individuals who are extremely angry may not be able to process social information efficiently, relying instead on categorical information. (This last idea is expanded later in this paper.)

Most research employing the continuum model of impression formation (Fiske & Neuberg, 1990) assumes that social perception operates unidirectionally from schema-driven to data-driven processing; hence, the social perceiver cannot revert to automatic categorical processing of an individuated person. For example, after the young man in the opening example began individuating his date and storing unique attributes about her in memory (e.g., she is charismatic, not nurturing, and so on),

he could not merely erase that information once he became angered and shouted stereotypic, categorical information. Because categorical and individuating information both are contained within memory storage, utilization of either type of information may depend on specific retrieval factors implicit in the Fiske and Neuberg (1990) continuum model: Categorical and individuated memorial information may be differentially accessible and retrieved. Thus, once angered, the man on the date may have focused on categorical information and associated stereotypes rather than on attribute-based information. But what factors may induce this effect?

Forgas (1995) offers a theoretical account of the role of affective states in social judgment with the Affect Infusion Model (AIM). Affect infusion refers to the process by which affective information in memory influences and is a part of the judgmental process and outcome. According to the AIM (Forgas, 1992a; Forgas, 1995), people making social judgments have four available information-processing strategies, each of which has specific circumstances for usage. Whereas the continuum model (Fiske & Neuberg, 1990) synthesizes information processing strategies into one cohesive continuum of impression formation, the AIM discriminates between discrete processing strategies. The first information-processing strategy, low in affect-infusion, is called direct access, and is based on "preexisting, crystallized judgments." This process of social judgment is most likely when: (a) the target is familiar and has highly prototypical features that cue an already-stored and accessible judgment, (b) the judge has no personal involvement, and (c) cognitive, affective, motivational, or situational influences do not mandate more elaborate processing. In contrast, according to the continuum model (Fiske & Neuberg, 1990), initial categorization is not always a dead-end information processing strategy: After initially categorizing a person, one can allocate attention to target attributes. Thus, a direct access stereotype such as a pre-formed belief would be immutable, capable of reconstruction only through use of a different processing strategy; conversely, the continuum model posits that stereotypes have the potential to be disconfirmed through individuating information.

The second information-processing strategy, also low in affect-infusion, is termed motivated processing. This strategy is used when strong, specific motivations press for a specific judgmental goal. Motivated processing is based on the assumption that people can use specific, preexisting preferences to

guide their search for information, as well as their judgments. Consequently, social judgment is based upon a partial, guided search of information.

Motivated processing closely resembles Kruglanski's theory of lay epistemics (1989). The theory posits that knowledge is reached through a process of hypothesis generation and hypothesis validation, concluding when one reaches cognitive closure. Cognitive closure is the adoption of a judgment that resolves ambiguity and questioning. In specific types of situations, people's need for cognitive closure may be heightened by motivational factors, and the epistemic process may terminate more quickly. For example, Ford and Kruglanski (1995) demonstrated that participants high in need for closure -- induced by increasing cognitive load -- tended to judge an ambiguous target in terms of primed traits, whereas participants high in need to avoid closure -- induced by emphasizing the importance of accurate judgments -- tended to base judgments less in terms of primed traits. Other studies have provided additional evidence of the effects of epistemic motivations on the use of accessible constructs in social judgment (e.g., Heaton & Kruglanski, 1991; Sanitioso, Kunda, & Fong, 1990).

Kunda (1987) has extended the notion of motivated processing by proposing that people motivated to hold specific beliefs about another person attempt to construct justifications for their desired beliefs. Thus, individuals often selectively search for, access, and use those beliefs that support their desired conclusions. Furthermore, their conclusions may be the basis for the construction of new general beliefs about people and events (Klein & Kunda, 1992). For example, participants motivated to perceive people with schizophrenia positively expressed more positive stereotypes of that group than less motivated participants (Klein & Kunda, 1992).

Heuristic processing, high in affect-infusion, is the third AIM information-processing strategy. Social judges may use heuristic processing when they wish to make a judgment with minimal effort, taking shortcuts and utilizing only some of the available information. This processing is most likely when: (a) the target is simple or highly typical, (b) the judgment has low personal relevance, (c) no specific motivational objectives can be identified, (d) the cognitive capacity of the judge is limited, and (e) the situation demands little accuracy or careful scrutiny. Unlike direct access processing, heuristic processing involves a degree of computation and constructive processing.

The final processing mechanism, similar to attribute-based processing (Fiske & Neuberg, 1990), is called substantive processing, and necessitates selecting, learning, and interpreting novel information about a target and relating this information to preexisting knowledge structures. This processing is likely when: (a) the target is complex or atypical and (b) the judge has ample cognitive capacity and (c) the judge has no specific motivated interest besides a desire for accuracy possibly due to implicit or explicit situational demands.

Although the AIM presents a clear theoretical account of *initial* information-processing strategies, it provides less predictive utility regarding the role of affect on memory retrieval of information previously processed. Thus, a theory that in many regards complements both the AIM (Forgas, 1995) and the continuum model of impression formation (Fiske & Neuberg, 1990) will be offered to explain connections between emotional arousal and memory retrieval.

A Theoretical Account of the Relationship Between Emotional Arousal and Memory Retrieval

While previous researchers have examined the effects of mood on initial information processing, the present study investigates the impact of affect on memory retrieval. This study examines how affect influences people's perceptions and judgments of individuated targets.

Previous research findings suggest that one's level of negative emotional arousal influences both the probability of *retrieving* categorical/individuating information from memory and the valence of the information retrieved. This proposition is based upon four assumptions. First, it assumes that a variety of strategies are available for retrieving memorial information. Memories can be retrieved through heuristic, "short-cut" processes that quickly locate and retrieve easily-accessible information. Memories can also be retrieved through more "thoughtful," analytic processes that systematically locate and retrieve relevant attribute-based information. A number of theoretical systems of information processing include this differentiation between processing strategies (e.g., Fiske & Neuberg, 1990; Forgas, 1995).

The second assumption of the proposition is that people's information retrieval systems operate economically (Fiske & Taylor, 1984). A fundamental postulate of the "cognitive miser" perspective is that the less energy exerted on tasks, the more energy available for other, expected or unexpected, tasks.

People adopt the most effort-minimizing information retrieval strategy that fulfills the requirements of the task at hand. Because cognitive capacity is a limited resource (Shiffrin & Schneider, 1977), individuals often categorize others as members of specific groups, thus obtaining integrated, prior information while saving processing effort and time. Furthermore, the combination of low attentional capacity and the heuristic retrieval of information makes one more likely to retrieve category-consistent information. As mentioned earlier, because categorical information has more and stronger links to attributes than they do with each other, the category will play a more influential role than any single attribute (Fiske & Pavelchak, 1986); consequently, categorical information should require less attention to access and retrieve than weaker individuating information. If a target is important to perceivers, however, they are more likely to utilize "thoughtful," systematic memory retrieval processes.

Research on arousal and stereotyping supports this assumption. Findings converge to indicate that arousal reduces attention, making the retrieval of categorical information more likely. For example, Paulhus et al. (1992) provide evidence suggesting that high arousal increases gender stereotyping. Furthermore, Paulhus and Lim (1994) suggest that emotional arousal reduces the cognitive complexity of social perceptions, resulting in polarized evaluations of social targets. In other words, emotional arousal may make one apt to draw upon categorical person perceptions (such as stereotypes), which are stronger and have more links than any single attribute connected to the category.

Macrae, Milne, and Bodenhausen (1994) offer implicit support for this assumption by emphasizing the adaptive function of stereotyping within the complex social environment. They provide evidence that stereotype application preserves processing resources. When attentional capacities are limited by an extreme level of emotional arousal, it seems reasonable that social perceivers may draw on stereotypic information so as not to overtax the limited capacity of the cognitive processing system.

The third assumption of the proposition is that affect influences the memory retrieval process. High emotional arousal reduces the capacity to systematically retrieve relevant information from memory and, by implication, increases the likelihood of heuristic information retrieval processes.

This third assumption is supported by recent research suggesting that positive affect may reduce the processing of and capacity for information. Worth and Mackie (1987) provide evidence that positive

mood can reduce systematic processing. Mackie and Worth (1989) found that, when shown persuasive messages, participants in a neutral mood showed a greater attitude change indicative of systematic processing than participants in a positive mood. They interpret their results as suggesting that participants in a positive mood had a reduced cognitive capacity to systematically process information.

Similarly, Bodenhausen, Kramer, and Susser (1994) found that happy people who made judgments about a case of alleged student misconduct were significantly more likely to offer more severe judgments about a stereotyped judgment target than were people in a neutral mood. They showed that happiness can trigger stereotypic judgments more than neutral moods, except when participants are told that they will be held accountable for their judgments.

The fourth assumption of the proposition is that affect influences the content of the information retrieved from memory. There are two premises to this assumption. First, because of the ambiguous nature of social information (e.g., Bruner, 1958), social perception is heavily influenced by what *categorical* information pertinent to a given behavior is most accessible and easily activated (Bruner, 1957). Extreme levels of emotional arousal reduce one's capacity to systematically process situational, social, and self stimuli. This premise is supported by Easterbrook (1959), who postulated that increases in arousal decrease attentional capacity and magnify salient cues. Therefore, whereas individuals who are minimally aroused would have a wide perceptual range but poor attentional discrimination, those with extreme arousal would have a narrow perceptual range. For example, once the young man on the blind date became infuriated, his perceptual range may have diminished such that, instead of noticing extraneous details in the social environment (e.g., the hustle-and-bustle of customers), he may have only perceived salient internal and external social cues (e.g., salient stereotypes).

Individual differences in personality can make some categories more accessible in memory than others. These personality dimensions are called "chronic," because people are habitually more sensitive to them (Bargh & Pratto, 1986; Fiske & Taylor, 1991). For example, some people may typically notice the friendliness in others, while others may concentrate on people's assertiveness. Chronicity is one explanation for why different people often describe the same individual differently: Each person may have different levels of chronic accessibility to different personality dimensions. Thus, the young man on

the date may have possessed chronic accessibility of certain categories and stereotypes, particularly about women. However, social perceivers rely predominantly on individuating information in unambiguous, specific situations (Kunda & Sherman-Williams, 1993), thus potentially paying little attention to chronically accessible information.

The second premise of the assumption is that *affective* information that is most accessible and easily activated heavily influences judgments. Specific affective states may affect people's emotional slant on information retrieved from memory. For example, if an individual is negatively emotionally aroused, will that person be more likely to retrieve stereotype-consistent *negative* statements instead of stereotype-consistent *positive* statements? If so, why? Two prominent, and possibly complementary (Forgas, 1995), explanations for mood effects are affect-priming and affect-as-information models. Both models lend support to the prediction that anger will enhance the likelihood of evaluating people in negative ways.

According to *priming models*, social perceivers have a tendency to access information consistent with their mood (e.g., Bower, 1981; Isen, 1984), attend particularly keenly to information consistent with their mood, and interpret ambiguous information in line with their mood. Consequently, mood-congruent judgments are apt to occur (Bower, 1981; Forgas, 1991). For example, some findings indicate that affect influenced judgments, even when participants were told to maintain a rational judgmental process (see Forgas & Bower, 1988). Happy or sad participants were asked to judge the likelihood of happy or sad future events, such as having a car crash, a European holiday, or a nuclear disaster. While participants were specifically instructed to be as objective in their judgments as possible, their affective states "dramatically influenced their subjective probability estimates compared with estimates . . . by control participants who were in a neutral mood" (p. 396). Because of preferential priming, making mood-consistent information more available, mood-consistent judgments have been shown to be produced faster than inconsistent judgments; also, mood-consistent information can have a greater effect on judgment than inconsistent information (Forgas & Bower, 1988).

The *'feelings-as-information' model* (Schwartz, 1990) suggests that mood-consistent judgments may occur when social perceivers *misattribute* the source of their mood to the target of their evaluation.

For example, suppose the young man in the coffee shop were in a bad mood even before meeting his date; upon meeting her, he could have misattributed the source of his bad mood to *her*. Thus, his affective state would have provided evaluative information about the alleged source that triggered his affect.

In summary, the proposition predicts that retrieval of category-consistent information over category-inconsistent information is more likely if one has a low attentional capacity and utilizes heuristic information retrieval processes. Furthermore, retrieval of *negatively*-valenced information, such as negative stereotypes, is likely when one is *negatively* emotionally aroused. Lastly, the proposition holds when a perceiver retrieves information about an outgroup target categorized as such by salient differentiating characteristics.

Predictions Based on the Theoretical Assumptions

One's level of negative emotional arousal may influence the probability of retrieving category-consistent and category-inconsistent negatively-valenced information in memory. Thus, a high level of emotional arousal of anger would trigger access and retrieval of negatively-valenced, category-consistent information. To offer initial support for the proposition, an experiment used a mixed-design 2 (Affect: Anger/No Anger) X 2 (Information Rated After Anger Inducement: Category-Consistent/Category-Inconsistent) X 2 (Category Valence: Positive/Negative).

A number of predicted effects would offer support for the theory about memory retrieval.

The theory predicts a main effect of anger on stereotyping. The angrier participants were, the more they were expected to stereotype. Stereotyping was indexed by Likert ratings of descriptive, category-consistent adjectives. Thus, it was expected that:

H1: Angered participants would give higher Likert ratings to category-consistent information than non-angered participants. (A mean difference was expected.)

Second, although category-consistent information was expected to be more accessible than category-inconsistent information regardless of affect, there was a predicted main effect of anger on accessibility of category-consistent information. Category accessibility was measured by how quickly participants rated category-consistent adjectives. Faster response latencies corresponded to more accessible information. This led to the expectation that:

H2: Across affect conditions, category-consistent adjectives would be rated faster than category-inconsistent adjectives.

H3: Angered participants would rate category-consistent adjectives faster than non-angered participants.

Third, because angered individuals had primed negative information, negatively-valenced information was expected to be more accessible for angered than non-angered people. Thus:

H4: Angered participants would rate negatively-valenced adjectives faster than non-angered participants.

Fourth, the accessibility of positively-valenced information was expected to have been inhibited by the priming of negatively-valenced information, because the priming of negative information was predicted to cause participants to access negative information before positive information. However, there was no predicted difference between the accessibility of negatively- and positively-valenced information for non-angered participants. Thus:

H5: There would be an interaction between the valence of information (positive/negative) and the affect induction effect (anger/no anger) on the time it would take to access category-consistent information. In other words, it was predicted that in the neutral condition, there would be no mean difference between ratings of negatively- and positively-valenced adjective latency times; in the anger condition, negatively-valenced information was expected to be rated faster than positively-valenced information.

In summary, five hypotheses were outlined in support of the basic proposition that one's level of negative emotional arousal may influence the probability of retrieving category-consistent and category-inconsistent negatively-valenced information in memory.

CHAPTER II

METHOD

Overview

Participants were told that they would be taking part in a study about the forming of relationships via "internet chat rooms." The study was described as investigating whether people's impressions of another person gathered through written communications were similar to their views of that person once they actually meet him or her. Participants were presented with a computerized self-description allegedly written by the other participant. In actuality, the information consisted of standardized paragraphs of stereotype-consistent and -inconsistent information about women. After the participant read the paragraphs, the computer apparently locked up. While the experimenter allegedly attempted to remedy the broken machine, participants were asked to complete an affect induction procedure for a "professor down the hall." Participants were randomly allotted to either an anger or neutral mood induction condition. Once the computer was supposedly fixed, participants completed questionnaires about the extent to which they believed different adjectives applied to the alleged other participant, as well as about their own mood state and their attitudes toward women in general.

Participants

Participants were 54 undergraduate students attending the University of Massachusetts at Amherst. They received psychology course credit for their participation. Participants were randomly assigned to one of two conditions created by the between-participants variable of affect (anger/no anger). During the intense debriefing process, experimenters noted six participants who expressed suspicion regarding the deceptive procedures; two of the participants were in the no anger condition, while the other four were in the anger condition. These six participants were excluded from analyses. Consequently, in the anger condition, there were 16 females and 10 males; in the neutral condition, there were 11 females and 11 males.

Procedure

Participants arrived at the laboratory independently and were immediately escorted by a female experimenter into a room with a computer.

There were four primary stages to the experiment. First, after completing the informed consent procedures, participants were told that in this study, the experimenter was interested in finding out if their impressions of another person they would meet through written communication (such as through internet chat rooms) would be similar to their impressions of that person once they have actually met him/her. Participants were presented with a computerized self-description allegedly written by another participant in an adjacent room. In actuality, the description consisted of standardized paragraphs of categorically-consistent and -inconsistent information about women. The experimenters emphasized that since the participants were going to meet each other later in the experiment, they should become as acquainted with that person as possible through the personal description, attempting to grasp clearly a sense of the other person's personality.

Second, after the participants read the information on computer, the computer apparently locked up. While the experimenter allegedly attempted to retrieve the information necessary to unlock the computer, participants were asked to complete a short study for a professor "down the hall." All participants agreed to this task. The bogus study was actually an affect induction. Participants were randomly assigned an envelope with one of two possible mood manipulations within it: an anger induction or a neutral affect induction. The directions on the affect induction paper for participants in the anger condition were to recall an incident in their life histories that made them extremely angry. They were handed a pencil and paper and were told that they would be given 12 minutes to recall vividly and to record how the event occurred (see Bodenhausen et al., 1994, and Strack, Schwartz, & Gschneidinger, 1985, for similar manipulations). Participants in the non-anger condition were instructed to recall and record mundane events in their lives, such as the buildings they passed on the way to classes; these participants were also allotted precisely 12 minutes to complete the study (Bodenhausen et al., 1994). After twelve minutes passed, the experimenter returned to the room, collected the affect induction papers, and successfully "unlocked" the computer.

The third stage of the experiment involved completing questionnaires. Before allegedly meeting the other participant, participants were asked to respond to a short set of computerized questions. The first one regarded rating the extent to which different adjectives applied to the alleged other participant;

they were instructed to rate on a scale from 1 (not at all) to 6 (a lot) how well various adjectives (i.e., qualities) described the fictitious other participant. The adjectives highlighted category-consistent and category-inconsistent qualities of the fictitious participant. With the second questionnaire, developed by Epstein (1979), participants rated their current emotional state in relation to clusters of adjectives. The final questionairre was the Ambivalent Sexism Inventory (ASI), developed by Glick and Fiske (1996), which was included to assess participants' general levels of sexism toward women. Because all participants were rating a female target, the ASI was included to assess the effects of sexist biases on target ratings.

The final stage of the experiment involved probing the participants for suspicion and then debriefing them.

Independent Measures

This study manipulated within-subjects category-consistent and category-inconsistent information about females. All subjects read both types of information presented on the screen.

More specifically, the target female's personal description comprised a number of paragraphs. Twelve of the sentences within the description each offered a particular type of categorical or attribute-based information, varying along the dimensions of stereotype consistency-inconsistency and positive-negative valence. Specifically, there were two types of category-consistent information provided within the target description: Three sentences contained information that was positive and consistent with the stereotypes of the target's gender (e.g., "I am caring"); another three sentences contained information that was negative and consistent with the stereotypes of the target's gender (e.g., "I am nosy"). There were two types of category-inconsistent information provided within each target description: Three sentences contained information that was positive and inconsistent with the stereotypes of the target's gender (e.g., "I am ambitious"). Three sentences contained information that was negative and inconsistent with the stereotypes of the target's gender (e.g., "I'm hot-tempered").

Dependent Measures

There were three dependent variables: (a) the amount of time for participants to rate each of the fictitious other participant's qualities, (b) participants' ratings of the fictitious other participant's

qualities, rated on a 6-point Likert-style scale, and (c) participants' levels of sexism toward women; this variable was included to account for individual participants' chronic prejudice toward women.

CHAPTER III

RESULTS

Manipulation Checks

The effectiveness of the affect induction manipulation is unclear. Participants rated their emotional state in relation to clusters of adjectives developed by Epstein (1979). An ANOVA comparing participants' affect self-ratings with their affect induction condition revealed no significant results, $F(1,46) = .094$, $p = .76$. Several reasons will be discussed later supporting the notion that the affect induction may nonetheless have been initially effective.

Assessing Chronic Attitudes Toward Women

The Ambivalent Sexism Inventory (Glick & Fiske, 1996) was not used as a covariate in the analysis of hypotheses for two reasons. First, participants' inventory ratings were found to vary depending upon which experimenter ran the experiment at the time, $F(2,42)$, $p = .068$. Second, a t-test of condition (anger/neutral affect) on ASI scores revealed a significant effect, $F(1,43) = 6.02$, $p = .018$; this analysis discounted one extreme outlier (i.e., participant #44, whose studentized residual = -3.74). As shown in Table 2, the affect induction influenced females' ASI scores, but not men's ASI scores. Females in the neutral condition responded to ASI questions in a less sexist way than males and females in the anger condition and males in the neutral condition.

Table 2. Mean ASI Scores of Females and Males in the Anger and Neutral Affect Induction Conditions.

	ANGER	NEUTRAL
FEMALES	3.4	2.9
MALES	3.6	3.5

Hypotheses Analyzed

Hypothesis One

Findings partially support the first hypothesis, which predicted a main effect for affect, such that angered participants would rate category-consistent information higher than non-angered participants. An

initial analysis of a gender X condition (anger vs. neutral affect) ANOVA on the category-consistent adjective ratings revealed no significant findings, $\underline{F}$ (1,44)=1.31, $\underline{p} > .05$. However, because of the small n within this study (n=48), which can make a minimal number of extreme responses highly influence the results, the ANOVA was recalculated without an extreme outlier (i.e., participant #48, whose studentized residual was 3.605). The results brought forth a marginally significant interaction of gender by condition on category-consistent adjective ratings, $\underline{F}$ (1,43) = 3.43, $\underline{p} < .08$. As predicted, males in the anger condition rated category-consistent information higher than males in the neutral condition (Ms=4.2 and 3.9, respectively). Interestingly, women responded in an opposite manner: Women in the anger condition rated category-consistent information lower than women in the neutral condition ($\underline{M}$s=3.9 and 4.1, respectively; see Figure 1).

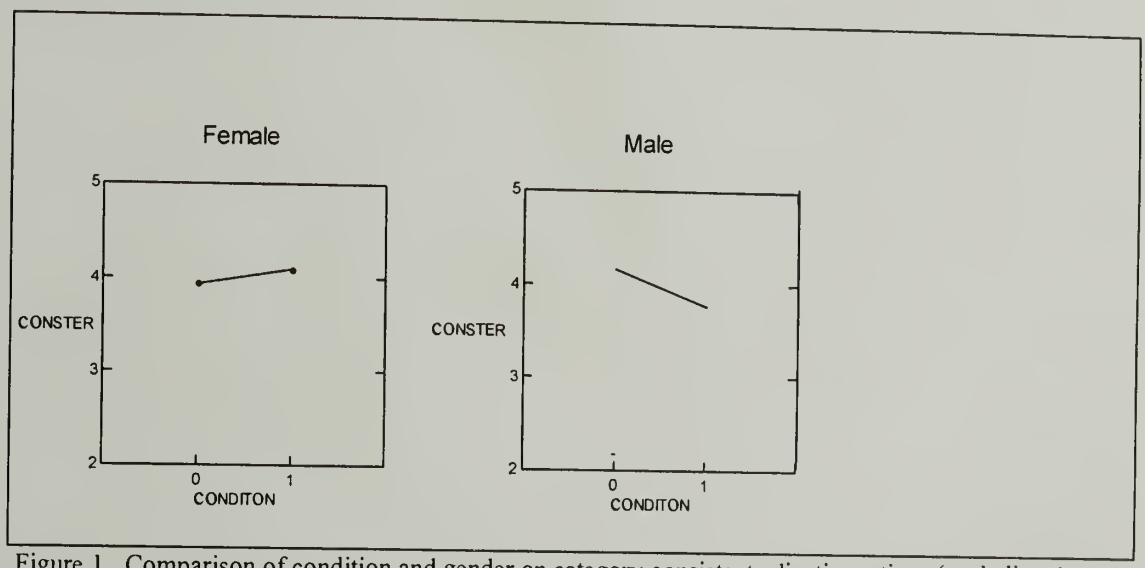

Figure 1. Comparison of condition and gender on category-consistent adjective ratings (excluding the outlier). Condition 0 is the anger induction condition, and Condition 1 is the neutral induction condition.

As a side point, it should be mentioned that an ANOVA was performed comparing the participant ratings of the category-consistent information in a design with participant gender and experimenter. The findings approached significance, $\underline{F}$ (2,42)= 3.02, $\underline{p} < .06$, reflecting that the results may have been dependent upon which of the three experimenters conducted the experiment at the time. For example, one of the experimenters appeared to elicit greater category-consistent adjective ratings (on a 6-point scale) from

male participants (M = 4.5) in comparison to the ratings from male participants run by the other two experimenters (Ms = 3.6 and 4.0).

Hypothesis Two

The second hypothesis predicted that across affect conditions, category-consistent adjectives should be rated faster than category-inconsistent adjectives. A paired t-test comparing category-consistent and category-inconsistent latency times revealed a statistically significant difference, t (47)= 2.69, p = .010. However, the difference was contrary to expectations: The response time to the category-consistent words (M = 4179 ms) was greater than the response time to the category-inconsistent latency times (M = 3620 ms). Nevertheless, methodological challenges may have impeded a valid assessment of hypothesis two, as will be discussed later.

Hypothesis Three

Hypothesis 3 predicted that angered participants should rate category-consistent adjectives faster than non-angered participants. An ANOVA of gender by condition on category-consistent adjective rating times revealed a statistically significant interaction effect, F (1,44)= 5.167, p < .03 (see Figure 2). Contrary to expectations, the male participants in the anger condition rated category-consistent adjectives slower than males in the neutral condition (Ms = 4615 ms and 3683 ms, respectively; see Table 3). However, female participants in the anger condition rated category-consistent adjectives faster than females in the neutral condition, as the hypothesis predicted (*Ms* = 3863 ms and 4737 ms, respectively).

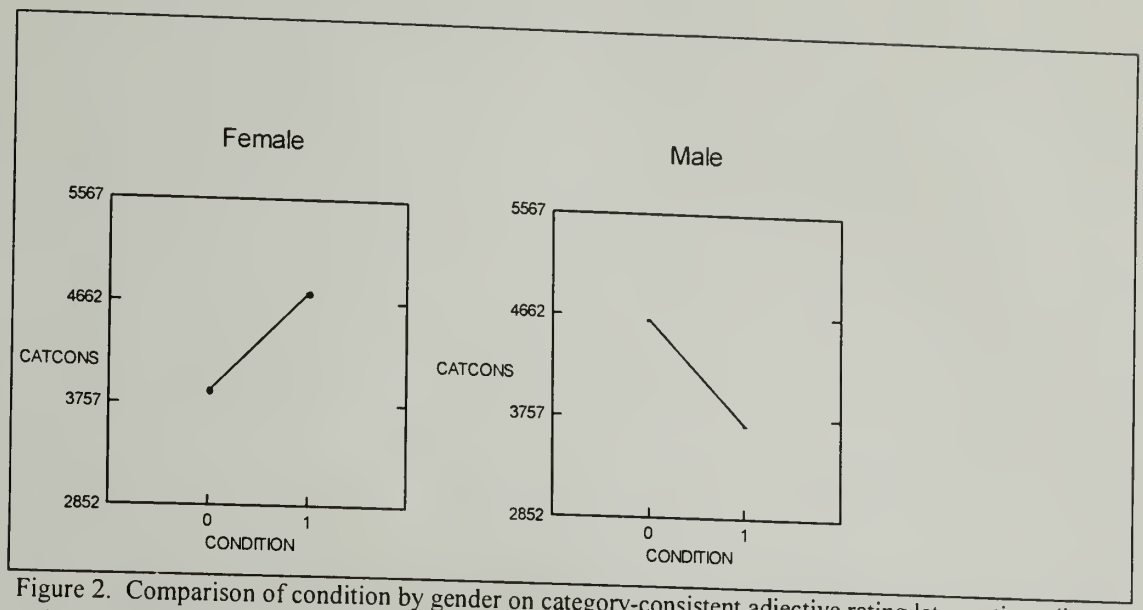

Figure 2. Comparison of condition by gender on category-consistent adjective rating latency times (in ms). Condition 0 is the anger induction condition, and Condition 1 is the neutral induction condition.

Table 3. Results of ANOVA of Gender by Condition on Category-Consistent Adjective Rating Times (in ms).

	ANGER	NEUTRAL
FEMALES	3863	4737
MALES	4615	3683

Experimenter factors again may have influenced the results. An analysis comparing experimenter by gender on the category-consistent latency times revealed marginally significant results ($F(2,41) = 2.35$, $p < .11$) when discounting one outlier (i.e., participant #4, whose studentized residual = 3.77). As seen in Table 4, male participants run by Experimenter 1 were more likely to pay attention to stereotype-consistent behaviors than female participants run by Experimenter 1 (Ms = 4553 ms and 3740 ms, respectively). Perhaps different experimenters incidentally primed stereotype-consistent or inconsistent cognitions due to their behaviors, personalities, appearances, and so on (discussed later).

Table 4. Comparison of Experimenter by Gender on Category-Consistent Adjective Rating Time Latencies.

	Experimenter 1	Experimenter 2	Experimenter 3
Female	3740	4690	4464
Male	4553	3530	4200

Further evidence of the effects of experimenter factors on the data can be seen in the results of an ANOVA of experimenter X gender on category-inconsistent response times, which revealed significant findings, $\underline{F}$ (2,41)= 6.199, $\underline{p} < .025$. (One outlier, participant #40, was excluded from this analysis because of the participant's extreme studentized residual of 4.73.) As shown in Table 5, male participants run by Experimenter 1, on average, attended more to stereotype-inconsistencies, while female participants run by Experimenter 1, on average, attended less to stereotype-inconsistencies.

Table 5. Comparison of Experimenter by Gender on Category-Inconsistent Adjective Rating Time Latencies (Discounting One Outlier)

	Experimenter 1	Experimenter 2	Experimenter 3
Female	2870	3895	3984
Male	4272	3461	3537

Hypothesis Four

Hypothesis 4 predicted that angered participants should rate negatively-valenced adjectives faster than non-angered participants. Testing the interaction between condition by gender on negatively-valenced adjective latency times revealed a significant interaction effect, $\underline{F}$ (1,44)= 4.78, $\underline{p}$ =.034 (see Figure 3). Negatively-valenced adjective response times were different for males and females within the two conditions. In the anger condition, males took longer ($\underline{M}$ = 4296 ms) to rate negatively-valenced adjectives than females ($\underline{M}$ = 3500 ms). In the neutral condition, males took less time ($\underline{M}$ = 3571 ms) than

females (M = 4473 ms) to rate the negatively-valenced adjectives. Thus, the results were as expected for women, but not for men.

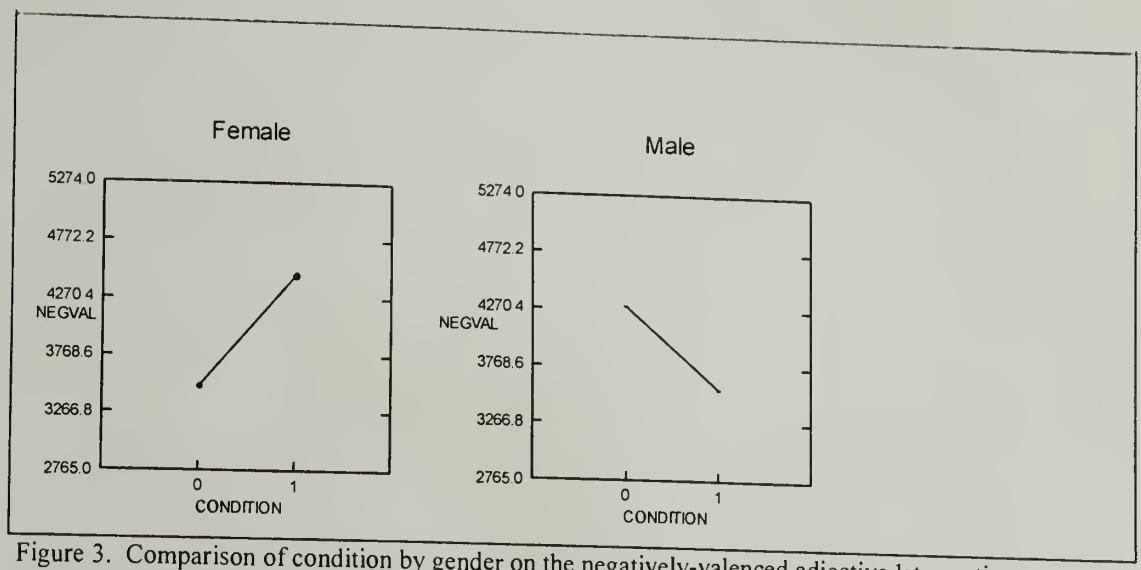

Figure 3. Comparison of condition by gender on the negatively-valenced adjective latency times. Condition 0 is the anger induction condition, and Condition 1 is the neutral induction condition.

Hypothesis Five

Hypothesis 5 predicted an interaction between the valence of information (i.e., whether it was positive or negative) and the affect induction condition (i.e., anger vs. neutral) on the time it takes to access category-consistent information. This interaction was not significant, $F(1,46) = 1.41$, $p = .24$. However, as reported in hypothesis 3, there was a significant interaction between condition and gender over all of the negative and positive category-consistent latency times, $F(1,44) = 5.167$, $p < .03$. Testing hypothesis 5, though, revealed no significant gender by condition interactions on negative and positive category-consistent information. Thus, females and males responded differently to category-consistent information regardless of whether the information was positive or negative (see Table 6 for cell means).

Table 6

Mean Comparisons of the Amount of Time It Took For Males and Females to Rate Positive and Negative Stereotypic Information in the Anger and Neutral Affect Induction Conditions.

	Category-Consistent Information (Stereotypes)			
	Positive		Negative	
	Female	Male	Female	Male
Anger	3932	4427	3793	4802
Neutral	4449	3520	5025	3844

CHAPTER IV

GENERAL DISCUSSION

A substantial body of research findings indicates that affect can exert powerful effects on subsequent impression formation (e.g., Bodenhausen, Sheppard, & Kramer, 1994; Fiske & Pavelchak, 1986; Forgas, 1992b). The present study extends this previous work by showing that affect can influence the probability of retrieving category-consistent and category-inconsistent negatively-valenced information *already stored in memory*.

Initially, it was proposed that affect would simply and non-differentially influence the probability of retrieval of particular types of information from memory. However, the present experiment's findings brought forth a much more complex role for affect. Two broad theoretically significant findings emerged from the data.

Theory-Relevant Finding One:

Latency in Responding to Stereotypic Information

The first theoretically significant finding regarded the time for participants to respond to stereotypic information. As the theory relating affect and social impression formation predicted (discussed earlier in the paper), female participants in the anger condition rated the target more quickly than female participants in the neutral condition. However, male participants in the anger condition unexpectedly rated the target more slowly than male participants in the neutral condition.

The unexpected responses of male participants may be due to two related factors: the effectiveness of the anger induction and censorship. The anger induction was intended to induce strong, negative emotional arousal for participants within the anger condition. The induction was expected to cause participants to feel fairly angered, "out of control," and, to a moderate degree, passive victims of their emotions. The anger induction was also expected to cause enough emotional arousal that participants' cognitive capacities would be quite limited.

The anger induction did not seem to live fully up to its name, though. On the basis of experimenters' behavioral observations, it appears that participants in the anger condition were negatively emotionally-aroused, but only to a minimal degree. By extension, one could infer that participants in the

anger condition felt minimally out of control, but nevertheless had a fair amount of cognitive capacity available for information processing. Therefore, instead of exerting a large, distracting, limiting effect, participants' negative feelings may have acted mainly as directive behavioral information (Schwartz, 1990). That is, instead of merely clouding participants' judgments as expected, the minimal emotional arousal may have functioned both as a subjective indicator of negative feelings toward something or someone and as a motivating impetus for behavior (e.g., censorship). Thus, negative emotional arousal may have provided participants with information about their present situation; without experiencing cognitive overload, participants could have used this affective information to their behavioral advantage, *if motivated to do so*. As will be discussed later, female and male participants may have been differentially motivated in how to respond to the experiment's questionnaires.

An example may help to clarify the level of emotional arousal participants apparently felt, as well as the psychological implications of that arousal on social judgments. Imagine a woman flying in through the front door after having had a *very* long and stressful day at work. Her husband greets her with a kiss and a tedious question concerning tax forms. One can only imagine the unblushing words that might pop out of the wife's mouth in response to her husband's question. In this instance, due to her high level of emotional arousal, the wife would have virtually no cognitive capacity for processing additional information. Her state of extreme emotional arousal would be analogous with the originally expected affective and behavioral state hoped to have been produced by the affect induction utilized within this study.

Now picture the same incident again, only this time after the wife has had a *minimally* stressful day at work. After the husband fires his question, the wife may have thoughts such as, "What a husband! Can't he see that I'm tired. Can't he understand that I've had a long day!" However, with cognitive capacity still available and not taken up by extreme levels of emotional arousal, the wife may not respond in line with her thoughts. Rather, she may pause and respond, "I've had a long day. Give me a few minutes to unwind and then we'll figure things out." In this latter instance, the wife, just like the angered participants in the present study, has a general awareness of negative feelings, but nevertheless has the cognitive capacity to process the situation, censor her thoughts, and behave appropriately. In essence, the

wife, similar to the angered participants, is aware that her negative feelings could potentially affect her judgments and behaviors; she thus can utilize a socially appropriate information processing strategy to censor her misguided thoughts.

Similarly, some participants may have censored their thoughts. The experimental design obligated participants to answer rapidly questions about the alleged other participant. Thus, minimally-aroused participants in the anger condition may have had negative feelings, cognitive capacity for social information processing, and situational demands for quickly answering questionnaire questions. Therefore, male participants in the anger condition may have rapidly *censored* their thoughts in compensation for the automatically-accessible negative thoughts retrieved due to the negative arousal. Censoring is defined not as suppressing a thought for a more appropriate thought, but rather more broadly as accessing a less typical (i.e., less accessible) schema for processing information.

With this basic understanding of the cognitive processes affecting angered participants, one plausible explanation for why angered male participants rated the target slower than male participants in the neutral condition becomes apparent: Male participants in the anger condition may have censored their schemas, drawing on less-typical schemas for rating the female target.

The censored ratings made by the male participants in the anger condition proved to be more extremely stereotypic than the ratings of the male participants in the neutral condition. At first glance, this finding may seem to undermine the theory regarding male censorship, for one would assume that after censoring, the ratings of male participants in the two conditions would be roughly equivalent. Closer scrutiny, though, reveals a different story.

It appears that there may be a hierarchy of potential schemas for processing information: The more emotionally aroused one is, the less complex the range of schemas accessible for information processing. When one has a high level of emotional arousal, one may be likely to process information rapidly, utilizing generalized, simplified schemas. When one has a low level of emotional arousal (e.g., when one is in a serious and concentrative mood), one may be likely to process information effortfully and deliberately; thus, a larger number of schemas may be available for information processing. Most pertinent for our discussion, when one has a moderate level of emotional arousal, one's level of

motivation may help determine the number and complexity of schemas accessible for processing information: The more motivated one is, the more sophisticated and abundant are the accessible schemas. However, even if extremely motivated, one's level of emotional arousal still limits the range of accessible schemas. Thus, male participants in the anger condition may have been more motivated to access socially appropriate schemas than male participants in the neutral condition; however, due to their higher levels of emotional arousal, they may have had a less complex range of schemas available for information processing.

Furthermore, assuming that male participants in the neutral condition did not draw on subsidiary schemas, it logically follows that male participants in the neutral condition would take less time to rate stereotypes. They had no negative emotional arousal, and thus had no subjective indication or reason to censor their thoughts.

To clarify, let us reexamine the anecdote about the wife walking in through the front door after a *minimally* stressful day. Her moderate level of emotional arousal would dictate the range of schemas available for responding to her husband's tax question. For example, in her moderately emotional state, the wife may have retrieved from memory two schemas for reacting to her husband: (1) To respond in an exasperated manner and (2) to respond in a moderately restrained, polite manner. Importantly, it would have been highly unlikely that the wife would have responded in a perfectly polite and responsive manner: Within her moderately aroused state, such schemas simply would not have fallen within the range of easily accessible schemas.

Additional evidence of censorship by males is provided by their unexpected tardiness in responding to negative adjectives when angered. Angered male participants may have taken the extra time necessary to censor their thoughts about negative adjectives directed toward the target female.

Gender Differences in Censorship:
Invocation of Ingroup/Outgroup Effects

Why would the men, and not the women, censor? As outgroup members rating a woman, men were more likely to be fearful of behaving in a manner offensive to the other group. For example, they may have been fearful that either the alleged other participant would discover their answers or the female

experimenter would perceive them negatively. More stereotypic thoughts may have been quickly and automatically accessible to men; however, because of other motives, such as the desire to appear socially appropriate and "politically correct" in their views about women, they may have taken the extra processing time to think past their knee-jerk stereotypic responses. On the other hand, female participants were rating an ingroup member and, therefore, felt little fear of behaving inappropriately. As is the protocol within many ingroup interactions, there is often an unwritten social rule that same-group members can insult and tease each other about stereotypic group characteristics without detrimental social or personal repercussions. For example, some Jews believe it is acceptable only for Jews to label an arrogant, wealthy Jewish female a "Jewish American Princess." Similarly, within the present study, females may have felt little anxiety or fear of offending the alleged female target with an off-key rating.

Additional evidence for female participants not needing to censor was provided by the pattern of their time latencies to negatively-valenced information: Female participants in an angry state took less time to rate negative adjectives than female participants in a neutral state. In the anger condition, female participants, unlike male participants, may have felt little external pressure to avoid rating the female target in socially-inappropriate ways. Conversely, in the neutral condition, females may have had a greater amount of cognitive capacity available for making a more accurate target assessment, considering both category-consistent and category-inconsistent information.

Theory-Relevant Finding Two:

The Valence of Stereotypic Information

A second theoretically significant finding regarded the valence of participants' ratings of stereotypic information. As the theory relating affect and social impression formation predicted (explained earlier in the paper), male participants in the anger condition rated stereotypes of the target more extremely than male participants in the neutral condition. Men in the angry condition may have had less cognitive capacity for retrieving stereotype-inconsistent information, thus accessing mainly stereotype-consistent information when judging the female target.

Female participants in the anger condition rated the target less extremely than female participants in the neutral condition. One explanation for this finding is that female participants may have attended

more to category-consistent than category-inconsistent information about the target. More specifically, they may have more effortfully processed information consistent with the stereotypes of the category "woman." Thus, category-consistent information in memory would have been more accessible to them than category-inconsistent information. Consequently, in the anger condition, female participants would have had limited cognitive capacity, which would have constrained the potential amount of inconsistent information available to make an accurate judgment of the target. Therefore, female participants in the anger condition would have been apt to make less extreme ratings than female participants in the neutral condition.

Furthermore, although motivation could have facilitated a more balanced view of the target, female participants in the anger condition were only minimally motivated to retrieve stereotype-inconsistent information about the target. Female participants could have been more motivated if, similar to the male participants' perceptions, they felt that their uncensored views of women could in some way be perceived as socially inappropriate.

Meanwhile, female participants in the neutral condition rated the target more extremely than female participants in the anger condition. Unlike female participants in the anger condition, those in the neutral condition had more cognitive capacity for retrieving stereotype-inconsistent information.

The Big Picture:

The Study's Overall Theoretical Significance

Overall, this study revealed three general findings that have important theoretical implications regarding the role of affect in social impressions. First and most fundamentally, affect influenced both recall speed and the extremity of ratings of information about a person *one had already individualized.* That is, while past studies tried to empirically discover the effects of emotion on initial processing (e.g., Bodenhausen, Sheppard, & Kramer, 1994; Paulhus & Lim, 1994), the present experiment showed that if a person already had an attribute-based view of another person, anger affected retrieval of that information. Participants' response latency and ratings varied in patterned ways depending upon whether they were in the anger or neutral condition. Regardless of the patterns of variation, that a difference between angered

and neutral participants existed accents the importance of including affect in current models of social information processing.

A second general finding of theoretical importance was that group membership affected participants' perceptions of a previously-individualized person, depending upon whether the target was a member of the same or a different group than the social judge. Group membership effects were shown in that participants' gender significantly affected ratings of a female target. Ingroup members (i.e., females) tended to rate the ingroup target differently than outgroup members (i.e., males).

Third, the priming of negative information via the anger induction appeared to facilitate recall of negative cognitions about a previously-individualized person (under certain conditions). Priming of negative information appeared to increase the likelihood that angered females recalled stereotypic information, as compared with neutral females. Conversely, though, priming of negative information did not increase the likelihood that angered males would recall stereotypic information, as compared with neutral males.

A Critique of Theory and Methodology

Within this study, several theoretical and methodological issues needed to be clarified or changed. First, the concept of emotional arousal needed to be more specifically defined for theoretical and methodological reasons. In particular, to what precisely did the term "anger" refer? Within the current experiment, anger was assumed to be a free-floating, negatively-felt arousal state with concomitant cognitive components. However, can anger be free-floating, or does there need to be a specific object to which anger is targeted? Perhaps the results of this study might have been different had participants been angry at the specific person whom they were rating. Future theoretical and empirical work should look at this issue.

Second, the degree of effectiveness of the affect induction was unclear. In future research, once a clear reconceptualization of anger is completed, it is imperative to use an affect induction technique that is both reliable and valid. That is, the technique must be able to induce all participants into a demonstrably approximately equal affective state, and multiple measures should be used to assess the

subjective validity of the state. In the future, the use of several different measures to assess participants' affective states would allow converging evidence regarding participants' levels of emotional arousal. It is suggested that one of the measures be experimenters' predictions about which condition they think participants have been placed. Furthermore, not only should the affect induction be reliable and valid, but it should also induce participants into a predetermined level of emotional arousal. For example, does the experiment call for participants to be slightly bitter, angry, or utterly enraged? Unfortunately, in the current experiment, participants appeared not to be induced into as extreme a level of emotional arousal as deemed necessary for a completely accurate assessment of the hypotheses tested.

However, there are several prominent reasons why the affect induction may still have worked effectively. First, because the affect self-rating was not administered immediately after the affect induction, the affect induction may have declined during the time lapse between the manipulation and the self-rating. Second, although blind to which affect induction condition participants were in, experimenters reported being able to determine participants' condition, based upon behavioral observations. In fact, two of the experimenters reported nearly 100% accuracy with their guesses about condition placement of participants they ran. No formal assessment measures were used to gather this information, though. Third, the affect induction may not have been powerful enough to produce reportable differences in mood without more sensitive measures. Additionally, the Likert-styled scale used with Epstein's affect induction check (1979) may not have been sensitive enough to detect participant variations in ratings. In particular, while participants self-rated adjective clusters on a scale from 1-6, the scale could have more sensitively detected mood variations if the range of possible rating points was larger (e.g., if the scale were from 1-100, more subtle mood variations may have been detected). Fourth, the adjectives participants rated on the mood checklist may have provoked reactivity, thus confounding mood self-ratings. For example, one of the clusters on the adjective checklist included the word "anger." In pilot work examining anger and social judgments, Bodenhausen et al. (1994) found that on a self-rating questionnaire, "angry" proved to be too reactive a term, producing floor effects in self-ratings; they decided to use the word "irritated" as a substitution. Thus, in future work related to emotion, affect self-rating scales should be pilot-tested to guard against participant reactivity. Fifth, the

affect induction may have been confounded by experimenter. There was a marginally significant mood by experimenter interaction, signifying the possible confounding influence of individual experimenter's behavior, appearance, and so forth, on participants' affective states.

A third issue that warrants further empirical and theoretical attention is the extent to which different experimenters may have exerted different effects not only on participants' affective states, but also on their *entire subjective experiences* within the experiment. Certain experimenters' behaviors, mannerisms, levels of attraction, and so on, may have primed different chronic and short-term cognitions and facilitated or inhibited specific affective states. In the future, at least two possible ways to avoid large variation in experimenter influence on the data are recommended. One route is to identify one reliable experimenter to be granted full responsibility for running participants. A second route is to select several qualified people to run pilot work. Analyze the pilot work, and choose the experimenters for whom there is no unusual or unexpected experimenter effects on the data to run the actual experiment.

Lastly, some of the unexpected findings can be contested on methodological grounds. For example, hypothesis two predicted that across affect conditions, category-consistent adjectives would be rated faster than category-inconsistent adjectives. However, the resulting difference in time latencies between ratings of the category-consistent and category-inconsistent adjectives may have been due not to actual differences in the accessibility of information, but rather to at least two potential differences in the content of the stimulus words. First, the category-consistent adjectives being rated may have been less like their synonym counterparts than the category-inconsistent adjectives; thus, the category-consistent adjectives may have been less primed and more quickly accessible. Second, the time to read the category-inconsistent words may have been less than that of the category-consistent words, influencing the longer latency period. For example, the category-inconsistent words may have been less familiar or more difficult vocabulary words to participants.

CHAPTER V

CONCLUSIONS

In conclusion, this study was designed to discover the impact of affect on the retrieval of previously-processed social information in memory. The results suggested that affect indeed influenced the content and process of memory retrieval. Participant gender appeared to be a major influence on memory retrieval processes of a female target. In general, the data suggested that ingroup participants in the anger condition rated an ingroup target faster and less extremely than ingroup participants in the neutral condition; conversely, outgroup participants in the anger condition rated a target slower and more extremely than outgroup participants in the neutral condition.

Years and years of research on the intertwined relationship between cognition and affect have yielded theoretically and practically significant findings. Research will eventually be advanced enough to pinpoint the multitude of social influences affecting people's behaviors in places as diverse as business offices and coffee houses.

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