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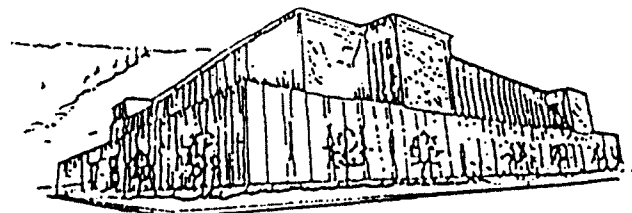
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THE INFLUENCE OF PREJUDICIAL ATTITUDE FORMATION ON THE
PERSUASION OF NEGATIVE IMPRESSIONS

by

Charles H. Asp

B. S., North Dakota State University, 1992

Presented in partial fulfillment of the requirements

for the degree of

Master of Arts

University of Montana

1994

Approved by



Chairperson, Board of Examiners



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Psychology

The Influence of Prejudicial Attitude Formation on the
Persuasion of Negative Impressions (96 pp.)

Director: Mark Schaller, Ph.D. *MS*

The purpose of the study was to examine the influence that prejudicial attitude formation had on the subsequent reduction of that prejudice. The experiment tested the hypothesis that in order for an intervention to change prejudicial attitudes effectively, that intervention must engage the same processes that led their initial development. Subjects were randomly assigned to receive either an information-based or interaction-based attitude formation procedure. The subjects received one of two prejudice-reduction interventions. They were either information-based or interaction-based in nature. The greatest decrease in prejudicial attitudes was hypothesized to occur when: (a) subjects received an information-based induction along with an information-based intervention, and (b) subject received an interaction-based induction along with an information-based intervention. Results were mixed. No support was found for the primary hypothesis. However, the results revealed several other interesting phenomena relevant to prejudice-reduction processes in general. The implications of this study in relation to prejudice formation and change are discussed.

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Introduction

The world situation is a testament to the power of prejudice. Throughout the former eastern block countries, ethnic conflicts litter the fields with the casualties of intolerance. In the country that was once Yugoslavia - hundreds have lost their lives to further a war fueled by this "disease." What could perpetuate the ethnic hatreds between these people? Surely in this enlightened age, an age characterized by outstanding accomplishments, the people of the world could remove the barriers of intolerance, fostering a society immune to this hatred. But, this is not the case. Today social psychologists study the factors involved in prejudice, investigating how erroneous attitudes are formed, preserved, and - possibly - changed. Past research has shown that prejudice can be decreased and attitudes can change, but only under certain circumstances. The present research was designed to explore this topic further. Specifically, I proposed that, in order for an intervention to change prejudicial attitudes most effectively, that intervention must engage the same processes that led to the development of those attitudes in the first place.

Processes Through Which Prejudice Develops

Previous research has shown that intergroup prejudices and perceptions may result from either information-based processes or interaction-based processes. Although these

distinctions have not been formally presented in any article, each appears to tap into a conceptually different body of research.

Information-Based Processes

A large body of research has shown that group stereotypes may develop purely as a result of information that individuals encounter, perceive, encode and integrate into cognitive structures (Crocker, Hannah & Weber, 1983; Hamilton, Driscoll, & Worth, 1989; Hamilton & Gifford, 1976; Hastie, 1980; Hastie & Kumar, 1979; Schaller, 1992; Srull, 1981; Wyer & Gordon, 1982; Wyer & Martin, 1986). These information-based processes do not depend upon any actual intergroup interaction. In fact, any stereotype that emerges as a result of a purely information-based process can emerge in the absence of any direct association with the target group. It is this consideration that sets the information-based "system" apart from other processes through which stereotypes develop.

An example of research on purely information-based stereotype development processes is a study by Hamilton and Gifford (1976). Subjects received information about members of two different groups. This information consisted of behavior-descriptive sentences about the members of the two groups. Although the ratio of desirable behaviors to undesirable behaviors was the same for both groups, the experimenters varied the number of total behaviors for each

group. Thus, subjects received more statements about Group A than Group B and the statements described more desirable than undesirable behaviors (but the ratio of desirable to undesirable behaviors was the same). The results showed that subjects formed a negative stereotype about Group B -- apparently as a result of over-attending to the infrequent (and therefore salient) undesirable behaviors describing Group B, the minority group. This research suggests that stereotypes can be formed through the encoding and processing of group-relevant information.

Interaction-Based Processes

Other research has shown that prejudice may emerge from very different processes resulting from actual interactions between competing groups. Perhaps the classic example of interaction-based prejudice formation is the famous "Robber's Cave" study of Sherif, Harvey, White, Hood, and Sherif (1954). Subjects were boys participating in a boy scout camp outside Oklahoma City. As part of their camp activities, the boys were randomly assigned to be in groups called the "Rattlers" or the "Eagles." Initially, the boys engaged in activities within their own group, without ever contacting the other group. Then, the groups discovered each other. Open competition was encouraged, and the groups entered a phase of extremely combative activities. During this time, the boys showed favoritism and solidarity within their own group. At the same time, both groups exhibited

prejudice toward members of the outgroup. This prejudice developed not merely as a result of information processing, but from motives emerging from their group classification and competitive intergroup interaction.

By interacting, the group identity is made salient. This implies that an individual's classification in a certain group will be more noticeable. In fact, additional research and theory suggests that mere classification into one group facilitates prejudice against members of other groups (Brewer, 1979; Tajfel, 1978, 1982). Social Identity Theory (Tajfel & Turner, 1979) suggests that when personal identity is threatened, people will seek to enhance their well-being by accentuating the differences between their own group and relevant outgroups. This process may play a major role in the development of group prejudice (Gaertner, Dovidio, Mann, Murrell, & Pomare, 1990; Gaertner, Mann, Murrell, & Dovidio, 1989). Thus, this theory presents a rationale behind why an individual would form prejudice from basic interaction coupled with group classification.

Prejudice-Reduction Processes

Just as prejudice may develop as a result of information-based or interaction-based processes, interventions aimed at prejudice reduction also draw on either information-based or interaction-based processes. Information-based interventions assume that attitude change begins when people attend to and comprehend relevant

information concerning a subject (McGuire, 1969). For instance, if an individual receives information designed to change his/her attitudes, this would only succeed if the person understood and encoded the presented arguments. In contrast, interaction-based interventions assume that prejudice can be reduced through cooperative encounters between different groups. By cooperating, the group boundaries become blurred, reducing identification with a particular group, and therefore, reducing prejudicial attitudes (Allport, 1954; Gaertner, Dovidio, Mann, Murrell, & Pomare, 1990; Sherif, Harvey, White, Hood, & Sherif, 1954). For example, the members of two fraternities, traditionally enemies, may become friends if both groups get involved in a community project wherein each group must rely on the other to succeed.

Information-Based Processes

The roots of the information-based process of stereotype reduction can be traced to the work of Fritz Heider (1944, 1958). Heider described humans as "intuitive scientists" or "naive epistemologists," constantly striving to maintain control over their environment through a perceived understanding of that environment. This perspective suggests that stereotypes and prejudice result from an individual's attempts to simplify his or her environment. This simplification allows the individual to understand their environment using less cognitive effort to

do so. Then this knowledge and understanding can be used to form predictions about the environment. Thus, stereotypes allow people to predict their environment better.

For example, a Korean shopowner may harbor the belief that black people do not pay their bills; consequently, the shopowner may refuse to sell to them. However, if this shopowner uncovers new information suggesting that black customers can be trusted, it would be beneficial to begin selling to members of this group. Thus, a change in the shopowner's beliefs would allow a more accurate prediction of the environment -- in this case, resulting in increased profits.

Essentially, this perspective implies that prejudice is the result of cognitive structures -- stereotypic beliefs -- that may change when one encounters information inconsistent with those existing structures. There are currently three models of stereotype change that draw upon this general theoretical perspective.

The "bookkeeping" model (Rothbart, 1981) suggests that stereotypes change as a result of a gradual accumulation of disconfirming information, suggesting that this model is dependent upon the individual encoding and remembering the information encountered. Also, the tenets of the model are that people keep a mental record of all information about a particular group. When a person makes decisions about a particular group, they check their mental "scorecard" --

drawing on all relevant information concerning the performance of group members in a certain situation. In the current example, the storeowner may remember 15 occasions on which black customers failed to pay their bills, and only 5 occasions on which they paid. Thus, the stereotype might be that black customers do not pay. If over the course of time this ratio changed, then the "scorecard" would also change. Over time the original belief would change gradually with each bill paid. Eventually, the storeowner might no longer believe that black customers were financial risks.

In contrast to the gradual change hypothesized by the "bookkeeping" model, the "conversion" model (Rothbart, 1981) suggests that stereotypes change only when powerful and disconfirmatory information is encountered suddenly. According to this perspective, individuals are unlikely to change their beliefs unless overwhelmed with information that powerfully discredits stereotypic attitudes. For example, the storeowner may "convert" his/her belief about black customers if 10 black men enter the store, choose items for purchase, and each one diligently pays for each item. The "conversion" model differs from the "bookkeeping" model in that there is no implication that disconfirming

need exceed the confirming instances. Instead, information a radical shift of belief occurs from condensed exposure to disconfirming information. An additional difference between the "conversion" model and the "bookkeeping" model concerns

the encoding of small amounts of disconfirming information. The "bookkeeping" model suggests that all disconfirming information is encoded and integrated into the evolving cognitive "scorecard." In contrast, the "conversion" model suggests that small instances of disconfirming information will not influence the individual's stereotypes; only salient condensed disconfirmatory information can cause the belief to change.

A third model, the "subtyping" model (Taylor, 1981) is altogether different from the other two. According to the subtyping model, original stereotypes do not change in any global, evaluative way. Instead, the presence of disconfirming information leads to the formation of subtypes or subcategories of the original stereotype. These exceptions are then cognitively stored separately from the original stereotype. For example, our storeowner may analyze all the black customers that successfully paid for their merchandise. The owner may determine that only black men in suits paid for the goods. Thus, the shopowner may tell a new clerk, "Most blacks can't be trusted and don't pay their bills, except the men in suits. They're different. You can sell to them."

Which of these three models best accounts for the existing data? Several recent studies have addressed this question (Johnston & Hewstone, 1992; Rothbart & Lewis, 1988; Weber & Crocker, 1983; see Hewstone, in press, for a

review). The results of this research provide evidence primarily for the subtyping model.

These results suggest that stereotypes are quite resistant to change, indicating that stereotype-disconfirming information often leads to subtyping rather than to changes in the overall stereotype. This does not suggest that information-based procedures are entirely ineffective in changing stereotypic beliefs. If the boundaries set for the subtype could be extended to include the majority of a particular group, then a reduction in the amount of prejudice exhibited by an individual may occur.

Although the research in this area supports the contention that stereotypes and prejudice may be influenced by information-based interventions, another body of research focuses on a substantially different way in which to change stereotypes and prejudice.

Interaction-Based Processes

This perspective on intergroup perception focuses on social rather than cognitive bases of prejudice. The implicit hypothesis is that cognitive processes are subsidiary to the emotional/motivational processes that occur when groups interact. A large body of research suggests that group prejudice can be reduced by intergroup interaction in which members of two distinct groups cooperate to attain an overall goal. An example of this

effect is the Sherif et al. (1954) study. As described above, Sherif et al. first developed group prejudice using interaction processes. Then they attempted to reduce the intergroup animosity by asking the boys to engage in activities designed to bring the two groups into contact. Even though the members of the "Eagles" and the "Rattlers" were in the same place at the same time, the original group boundaries remained, along with the animosity and prejudice. Sherif et al. finally turned to activities that required the two groups to cooperate. The experimenters presented the boys with superordinate goals that could only be attained when all the boys cooperated collectively. This intervention succeeded in reducing prejudice. The researchers reported that many boys from both the "Eagles" and the "Rattlers" became friends, even to the extent that they requested to be sent home on the same bus.

The theory behind the interactive-based intervention involves group classification and group boundaries. Specifically, it has been argued that classification in a group produces bias toward individuals outside the group (Brewer, 1979; Stephan, 1985; Tajfel, 1978, 1982). Just as the "Rattlers" developed strong prejudice against the "Eagles," so may individuals in general develop prejudice against groups to which they don't belong. The effectiveness of interactive-based interventions depends upon the reduction of the salience of intergroup boundaries. This,

in turn, should reduce the prejudice between the two groups.

Past research in this area has supported the hypothesis that interdependent interaction reduces prejudice. Beyond the work of Sherif et al. (1954), support was found in a series of studies done by Aronson, Blaney, Stephan, Sikes, and Snapp (1978). Deploying what they called the "jigsaw classroom," researchers placed school children into racially diverse groups. These children were then asked to learn about a particular topic. However, unlike normal instruction in which the teacher tells every student about the topic, each student was taught part of the topic independently. Thus, each student knew certain facts about the topic and was required to share this information with the other students. Using this system, each student relied on the others to gain full knowledge of the topic. The results suggested that racial relations improved when the students became dependent upon one another to succeed in learning the topic. Apparently, the cooperative interaction reduced perceptual boundaries between the races, reducing prejudice.

A more controlled study by Gaertner, Mann, Murrell and Dovidio (1989) examined the effects of two different intergroup interaction procedures. The researchers first divided subjects into two arbitrary groups of three people per group. Then, the members of each group cooperated on a task designed to foster group identity, doing so without

knowing that the other three-person group existed. Then the two groups were brought together in a room and placed in one of three conditions. In one condition, each group was seated at separate tables, making intergroup interaction impossible, and asked to perform a task while cooperating only with their own group members. In another condition, subjects were intermixed around the same table and asked to perform an interaction task in which members from both groups needed to cooperate. And, in the third condition, each subject was seated in a separate cubicle and asked to work on the task individually. The researchers found that intergroup bias was reduced when subjects cooperated in the larger group and when subjects performed the task individually. No reduction in intergroup bias was found when subjects interacted only with members of their initial group. The authors suggested that two different processes of prejudice reduction were occurring. In the cooperation condition, the initial group boundaries were changed, such that the salience of the larger group outweighed that of the smaller group. In the individualized condition, because subjects focused more on themselves than on the initial group classification, the group boundaries were less salient, and this too reduced intergroup bias.

In another study, Desforages, Lord, Ramsey, Mason, Van Leeuwen, West, & Lepper (1991) told subjects they would be interacting with a former schizophrenic patient. Actually

the person with whom they interacted was an experimental confederate. Subjects initially rated the favorability of both the individual, former, mental patient and mental patients, in general. In this task, subjects' outcomes were interdependent upon those of the perceived mental patient. Not only did their opinions of the individual mental patient become more favorable, but their opinions about formal mental patients as a group also improved.

An important factor in the effectiveness of interaction-based procedures is that both groups must be able to benefit from the interaction. Work by Thompson (1993) suggested that group interaction will not reduce group bias if ingroup and outgroup members cannot achieve their goals. In one study, subjects interacted with members of their outgroup. However, this interaction was designed such that neither group achieved successful outcomes. In this condition, prejudice against the outgroup did not decrease.

Summary: Information-Based vs. Interaction-Based Interventions

The preceding evidence suggests that both information-based processes and interaction-based processes can reduce group prejudice. However, in none of these studies did the investigators explicitly compare the effectiveness of the two prejudice reduction approaches, nor did they attempt to consider the processes through which

prejudice originally developed. For example, if the Korean storeowner developed a negative attitude about black customers by assessing the relevant information and arriving at a conclusion, will an interaction-based intervention be as effective as an information-based intervention at changing his prejudicial belief? Perhaps the process that the storeowner used to develop an impression about black people resulted in the formation of a unique process-related cognitive structure. If so, any intervention designed to influence this structure may need to engage the same information-based process if it is to be successful. Note that this example dealt with information-based prejudice formation. In fact, the same question would hold true for interaction created prejudice. Perhaps the only intervention that would work would be one that was interaction-based.

Past research and theory (Schaller & Maass, 1989) suggested that information-based and interaction-based processes may differentially influence group impressions. Initial presentation of information-based material may lead first to the formation of a cognitive structure about a group (stereotype), whereas with an interaction-based process, the result of an initial affective or behavioral bias against a group would foster the development of the negative impressions (prejudice). For example, a person may form a negative image (stereotype) about Hispanics through

reading newspapers and watching TV. Then when he/she encounters the group this person may exhibit discrimination against its members, forming a negative impressions (prejudice). On the other hand, a person working with Hispanics on a job may find that he/she is discriminating against them, creating prejudice, and therefore form a negative image (stereotype) to justify that prejudice. Thus, both processes will produce the same outcomes (stereotypes and prejudice), but the order in which they are formed (stereotype first, prejudice second or vice versa) may be different. This suggests that the way group impressions form may be an important factor influencing access to and change of these impressions.

The Process-Specificity Hypothesis

Similar ideas have been expressed in other domains of study. For instance, several different theories suggest that encoding of information can influence later retrieval of that information. Research on state dependent learning (Overton, 1972) and context dependent learning (Light & Carter-Sobell, 1970) suggest that the processes used to learn information can greatly influence the ability to recall that information. Although these phenomena deal with somewhat different processes, they are all based on the conceptual idea that the encoding context influences retrieval.

Research by Barden, Garber, Leiman, Ford, and Masters

(1985) suggests that changes in affective states conform to the tenets of a "process specificity hypothesis" (Barden, Garber, Duncan, & Masters, 1981). According to this hypothesis, affective states are most easily remediated by later experiences that are similar to those that led to the affective experience in the first place. In their study, a particular mood was induced in children. Then the experimenters attempted to change the children's mood using procedures that were either similar or dissimilar to those used in the induction. The results showed the greatest mood change in the condition where the persuasion procedures were similar to the induction procedures. Thus, this implies that the remediation of a particular mood occurred when the intervention procedure engaged the same processes used to induce the affective state.

The malleability of attitudes may also depend upon the way in which those attitudes were initially formed. Recent research by Edwards (1990) demonstrated that the processes involved in forming attitudes greatly affect the ways that these attitudes might be changed.

Edwards (1990) hypothesized that attitudes formed through one of two distinct processes (affective or cognitive) change only when the persuasion attempts engage the same process that was engaged during attitude formation. To test this hypothesis, subjects were presented with Chinese ideographs. Each ideograph was preceded by either

an affect-producing slide or a written statement about the ideograph. Subjects in the affective-induced condition were presented with a slide of a happy face for 10 milliseconds (faster than can be consciously perceived). The ideograph was then presented for 2 sec. Then positive information about the ideograph was presented for 30 sec., followed by another presentation of the ideograph for 2 sec. It was expected that through this procedure impressions about the ideographs would primarily be caused by affect because the affective slide preceded the written information. Thus, each slide was affectively tainted before the written information occurred. For these reasons, the resultant impressions were expected to be mainly affectively-based.

Subjects in the cognitively-induced procedure first received the ideograph for 2 sec, followed by a 30 sec information presentation, then the 10 millisecond happy face slide and another 2 sec presentation of the ideograph. It was expected that subjects would form a positive impression that would be caused primarily by cognitive information processing mechanisms.

In an attempt to change subjects' attitudes, Edwards (1990) repeated the above techniques in a second phase of the experimental session, changing both the presented information and the presented slide to be negative rather than positive. The results showed that the largest amount of attitude change occurred when subjects first received an

affective induction followed by the affective persuasion. This magnitude of change was greater than when these subjects received a cognitive persuasion. It was expected that the subjects who received a cognitive induction would experience a greater change in impressions when presented with a cognitive persuasion. However, this proved to be non-significant. Although, as Edwards (1990) suggested, these cognitively-formed impressions had a large affective component associated with them.

Edwards (1990) interpreted the results to suggest that initial contact with an object is subject to affective or cognitive development, such that this encounter forms a distinct mental pattern. Edwards (1990) experiment suggested that an affectively-created mental pattern is most easily accessed and changed when later experiences engage the affective processes that led to the development of that specific structure. Edwards (1990) suggested that this process-specificity also would apply to purely, cognitively-formed impressions.

The preceding research suggests that something is going on within the psychological structures of the individual. Apparently, initial contact with a stimulus creates a mental pattern the person then uses to access that stimulus. In cases of impression formation, persuasive procedures that engage and access the initial cognitive structures should be more likely to change the person's attitudes. In contrast,

persuasion procedures that fail to engage these structures will also fail to change the individual's attitudes.

An examination of previous research suggests that process specificity may be a factor in the formation and change of group prejudice. For example, many studies fall under the category of those that formed prejudice using interaction-based processes and then changed them using similar interaction-based processes (Sherif et al., 1954; Gaertner et al. 1989; Thompson, 1993). Other studies that looked at prejudice reduction used groups about which the subjects had previously formed opinions, such as librarians or fraternity members (Johnston & Hewstone, 1992; Weber & Crocker, 1983; Rothbart & Lewis, 1988; Desforges et al., 1991). It is impossible to know to what extent these pre-existing stereotypes resulted from information-based versus interaction-based processes. No research exists in which group impressions clearly were formed through one type of process and then changed through a different process. According to the proposed Process Specificity Hypothesis, there would be little impression change expected under these conditions.

The purpose of this experiment was to test the underlying hypothesis that in order to reduce prejudice successfully, interventions designed to change prejudice must engage the same processes used in the formation of that prejudice. For the purposes of this experiment, prejudice

was defined as the difference between the favorability ratings of each target group.

Methods

Overview

The following procedures were designed to induce a group attitude using one of two different methods. Then, a second procedure was implemented to change the attitude using one of two different persuasion methods.

During the induction phase, attitudes were formed in subjects by one of the following two procedures:

1. Information procedure. Subjects were presented with information about the abilities and behaviors of two different groups (group X and group Y). The information presented one group more favorably than the other.

2. Interactive procedure. Subjects learned that they were members of one of the two groups (group X or group Y) and engaged in a cooperation task with other members of their group. Also, during this cooperation period, they competed against members of the other group.

During the persuasion phase, subjects were presented with one of the following two procedures:

1. Information procedure. Subjects received information about the abilities and behaviors of both groups X and Y. This information was designed such that it appeared both groups were equally favorable.

2. Interactive procedure. Subjects engaged in a cooperative task with members of the group against which they were competing during the induction phase and about

which they were expected to have formed a negative impression.

Subjects participated in groups of 8. Of these 8, four subjects during the induction phase were assigned to receive the information procedure (receiving favorable and unfavorable information about groups X and Y). The remaining four subjects were assigned during the induction phase to receive the interactive procedure (cooperating with members of their own group, and competing against members of the outgroup).

The primary dependent variable was the favorability ratings for both Group X and Group Y. These were assessed using a Likert-type rating scale (see description below)

These ratings were assessed twice: (a) immediately following the induction phase, but before the persuasion phase; and (b) immediately following the persuasion phase.

Subjects

Subjects were 180 undergraduates (96 males, 84 females) at the University of Montana who participated for partial fulfillment of a course requirement. Since no effect of gender was found, it will not be discussed further. All subjects participated in the Psychology 100 screening prior to the experiment. In this screening, their demographic information was collected. Then, the experimenters called each subject to schedule a time for their participation. Subjects participated in single-gender groups of eight

subjects per session. (Subjects were run in single gender groups to minimize error variance in the dependent measure that may have resulted from the unique impact of male-female interaction).

Procedure

When subjects arrived, they were met by two experimenters and asked to sit in specific areas of a large classroom (see experimenter's script, Appendix A). They were told the study was designed to examine people's attitudes toward individuals who possess a distinct personality trait. Also, they were told that to remove any bias, they would neither be told what the personality trait was nor would they be informed of which group possessed the trait. For these reasons, the groups were referred to as Group X and Group Y. Subjects were not given any additional information concerning the personality types that comprised Groups X and Y. Additionally, subjects were told that, during the experiment, specific attitude assessment questionnaires would be given more than once. The reason, they were told, was because peoples' attitudes tend to change in short periods of time and these changes, if any, would be of interest to the experimenter.

Group Categorization:

Subjects were told that they were asked to participate because of their unique personality characteristics, assessed prior to the experiment in a separate screening.

In fact, all subjects had to participate in this screening to be eligible for the experiment. However, subjects weren't screened for any personality-relevant information; their participation in the screening was only done to be consistent with the cover story. The experimenter continued by telling subjects that the experiment focused on one particular personality trait, a trait that previous research had shown to be prevalent across cultures. However, the experimenter pointed out, not all people possess this personality characteristic. In fact, people were commonly classified as: (a) definitely possessing the trait, (b) definitely not possessing the trait, or (c) unable to be classified as possessing or not possessing the trait. The experimenter continued by telling subjects that they were called specifically because they fell into one of these three categories. The experimenter explained that the distribution of subjects was predetermined from the screening such that in the current group of eight, two people were members of group X, two people were members of group Y, and four people were unclassifiable.

At this point, the experimenter went to the front of the room and checked a large computer printout. Then, he/she returned to the subjects with colored badges and made the group assignments (in fact, all subjects were randomly assigned to one of the three possible classifications). Subjects were asked to affix the badges to their clothes for

easy group identification. The colors of the badges were: Blue badges for members of group X, Green badges for members of group Y, and White badges for those individuals who could not be classified at the current time. The experimenter explained that, although the questionnaire given during the screening was a fairly good instrument for detecting the existence of the personality trait, it was somewhat insensitive to finer distinctions. Therefore, those subjects who were unable to be classified required further evaluation to determine their group membership. Thus, another test, more precise than the first, would be administered later in the experiment.

To set their minds at ease the experimenter explained that inclusion in a certain group did not represent some kind of mental disorder, but that these groups merely represented two different, but common, personality types, neither of which was objectively better than the other. At this point, the subjects who were classified as either Group X or Group Y were asked to follow one of the experimenters to a different room. Subjects were told that this division was necessary to conduct the required tests. This other room was divided into two small 6' X 9' compartments with a door between. The experimenter asked the two members of Group X to go into one compartment, and the two members of Groups Y to go into the other. For the unclassified subjects (the people still sitting in the first room with

the other experimenter), each of them were asked to move into one of the individual cubicles lining the outside wall. At this point, all subjects were in position to receive the attitude induction procedures.

Induction Procedure:

Information condition (unclassified subjects). The experimenter informed the unclassified subjects that they would receive a "slide show" via computer. They were told that each slide contained information about members of group X and group Y and that they should read silently each slide as it was presented. Also, the experimenter told them that the slide show consisted of 40 slides and that the presentation would take approximately six minutes. Each slide contained: an individual's first name, that individual's group classification (Group X or Group Y), and a behavior that individual performed. Some of these behaviors were positive and some negative. Two of the four unclassified subjects received information designed to create a favorable impression of Group X and a neutral impression of Group Y. For these subjects, the slide show presented 15 positive and 5 negative statements about members of Group X and 10 positive/10 negative statements about members of Group Y. The other two subjects received information designed to create a favorable impression of Group Y and a neutral impression of Group X. For these subjects, they were presented with 15 positive/ 5 negative

statements about members of Group Y and 10 positive/ 10 negative statements about members of Group X. (see Table 1). After the presentation, subjects were asked to come out of the cubicles and wait for the second group to return to the room.

Cooperation/competition condition. The experimenter told the subjects classified as Group X or Y that a competition existed between these two groups. Thus, subjects were asked to compete on a task to achieve the best possible score. Subjects were informed that the score they achieved with the other member of their group would be added to an overall composite score for their particular group. Then they were told that all members of the group with the highest overall score would receive recognition at the end of the semester. The purpose of this procedure was to present an ostensible competition, not only at the small, two-person group level, but also at a larger, more encompassing level.

The experimenter then handed out the instruction and scoring sheet for the task and answered any questions concerning the task. Time was kept while the subjects completed a task known as the "NASA team exercise" (Aronson et al., 1978; see Appendix B). Specifically, they were told that they had crash landed on the moon and must travel 200 miles to their mother ship. Spread out before them were the remnants of their ship, consisting of 15 items. They must

Table 1

Presentation of Slides to Subjects in the
Information-Induction Condition

Number of Statements	Condition	
	(X pos; Y neut)	(X neut; Y pos)
Positive X	15	10
Positive Y	10	15
Negative X	5	10
Negative Y	10	5

rank order the importance of each item and give a rationale for the item's use. Subjects were told that a correct answer did exist for this task, and that these answers were developed by experts who studied the lunar environment. Subjects were told that their responses would be compared against the correct answers to determine a score. First they would have three minutes to complete the ranking of the items, upon which time the experimenter would collect the scoring sheets and correct them. They would then have 2 minutes to complete another ranking that would also be scored and returned. Following this, they would have an additional minute to complete the final ranking of the items. The experimenter gave feedback after the first two rankings. However, subjects were told that their final score was a composite of all of their previous rankings, and that it would take a few minutes to correct them. At this point the experimenters led the subjects back to the large experimental room.

Attitude assessment. At this point, all subjects returned to the large main room. The experimenters asked all subjects to return to their initial seats. Then, they administered the attitude assessment questionnaire along with the 12-item Personal Need for Structure (PNS) questionnaire (Neuberg & Newsom, 1993; see Appendix C). The results of the PNS were analyzed as a secondary factor in the overall analysis. The subjects were told that the PNS

scale was a questionnaire that would help the experimenter understand the subjects better. Also, they were told that the PNS scale did not measure the main personality characteristic that was used to categorize the subjects into different groups.

Dependent measures. The primary dependent measure was the average favorability score for members of Group X and Group Y made on a Likert-type scale. This scale was composed of various measures, each designed to tap into the favorability toward members of Groups X and Y (see Appendix D). The first set of questions asked subjects to rate how certain attributes described members of each group. The attributes were: popular, unsociable, irresponsible, loyal, trustworthy, honest, and happy. These items were taken from a scale originally used by Hamilton and Gifford (1976). Then subjects rated each group on a variety of questions designed to assess their opinions of Group X and Group Y unobtrusively. An example of these questions was: "A college freshman takes calculus and receives a D for a course grade. What could the student's membership be?" Finally, subjects answered questions derived from the Interpersonal Judgment Scale (Byrne & Wong, 1962) that had been revised for the purposes of this experiment. An example of these questions was: "I believe that I would very much dislike working with members of group X in an experiment" -- rated on a 7-point Likert-type scale. Averaging across

these various items, two favorability scores were developed -- one for Group X and one for Group Y. Results from pilot data suggested that the internal consistency of all the questions assessing each score was high: For the Group X score, Cronbach's alpha = .89; for the Group Y score, Cronbach's alpha = .90. When the questionnaires were completed and collected, the persuasion phase began.

Persuasion Procedure:

At this point, there were four subjects who formed attitudes through the information procedure and four subjects who formed attitude through the cooperation/competition procedure. For the persuasion phase of the experiment, all eight subjects were assigned either to the information-persuasion condition or the cooperation/competition persuasion condition.

Information-persuasion condition. For the sessions devoted to this condition, each of the eight subjects was asked to go to a small individual cubicle along the outside wall of the main room. Once seated, the subjects were presented with a six-minute "slide show" presenting information about members of group X and group Y. As in the information-induction procedure, the slides consisted of a person's name, group membership, and a behavior that person engaged in. During this presentation, the number of positive and negative statements about Group X equaled the number of positive and negative statements about Group Y :

of the 20 total statements given about each group, there were 15 positive and 5 negative statements.

When the subjects finished watching the "slide show" they were asked to return to their seating in the large main room. At this point, the experimenter administered the attitude assessment questionnaire a second time.

Cooperation/competition condition. In the sessions devoted to this condition, all eight subjects were asked to sit around one table. The experimenter assigned a specific seating arrangement (U X U Y U X U Y; with U= unclassified subject, X= member of group X, and Y= member of group Y). Subjects were asked to cooperate as a group for the best possible score on two tasks. Before beginning the tasks, the experimenter asked subjects to choose a new colored sticker for their overall group; a color different from blue, green or white. Following this, stickers of the chosen color were distributed and subjects were asked to affix them to the badges they currently were wearing. Then the experimenter asked the group to choose a name from two options supplied by the experimenters. Subjects were told that the name was for identification purposes. When this name is chosen, it was written on a movable white-board. Finally, the experimenter explained that this newly formed group was competing against all the other eight person groups that completed the experiment and that a visual log needed to be kept of all the groups. So, the eight members

were asked to stand around the whiteboard, which had their group name written on it, and the experimenter took a group photograph. Following this, subjects were told that the eight-person group receiving the highest score on the tasks would have their picture displayed at the end of the semester, and, for that reason, the photograph was a necessity (these activities were all designed to heighten subjects' identification with the group).

The eight subjects then worked as a group on another task. The task was similar to the one used during the cooperation/competition induction procedure and involved being lost in the woods with only limited survival material (see Appendix E).

When the single answer sheet containing the group's responses had been collected, the experimenter asked subjects to return to their first seating arrangement (the chair they sat in when they first entered the room). This was done so that subjects would not sit together or change the overall seating arrangement. A second attitude assessment questionnaire was then administered to the subjects.

Debriefing. The subjects were fully debriefed about the experiment. The experimenters stressed that the so-called personality assessment tasks were meaningless and that the group categorization was purely random. At this point one experimenter gave the best solutions for any and all of the

cooperation task problems. The answers were given so that subjects could see how their responses compared against the correct ones. Next, the experimenter answered any questions, asked to subjects not to discuss the experiment and dismissed them.

Pilot Study

Before the full project was undertaken, a pilot study was completed to determine whether comparable group attitudes could be induced using the procedures specified in the overall methods section. Also, this pilot study investigated the utility of the dependent measure.

Subjects

Subjects were 39 undergraduates at the University of Montana participating in the experiment for partial fulfillment of a class requirement. All subjects participated in single gender groups. The subjects participated in either the interaction-based induction condition or the information-based induction condition.

Procedures

The procedures were the same as those described above except that the subjects did not receive an intervention phase. They were presented with either the information-based or the interaction-based induction materials. They were then asked to fill out the dependent measurement scale to assess their opinions about each group.

Results and Analysis

Internal consistency of attitude measure. The first goal of the pilot study was to determine the internal consistency of the attitude assessment scale. Because this scale was composed of revised questions from other experiments plus newly developed questions (see Appendix D),

internal consistency was vital. This scale produced two separate scores: one for the ratings of Group X and one for ratings of Group Y. The internal consistency on this test was high: questions used for Group X -- Cronbach's alpha = .89, questions used for Group Y -- Cronbach's alpha = .90).

Effects of prejudice induction procedures. After determining the internal consistency of the scale, the data were then entered into a 2 x 2 repeated-measures ANOVA (induction x group) to explore the differences more carefully. The results showed that the difference between the "good" group and the "bad" group was significant $F(1, 38) = 12.74, p < .001$ (see Table 2). It was also found that the overall ratings by subjects receiving the interaction-based induction procedure were significantly higher (representing more favorable impressions) than the ratings of subjects receiving the information-based induction procedure $F(1, 37) = 13.06, p < .001$. This effect was not expected from the hypothesis. However, the emphasis of the current research is on differences in attitudes toward both of the target groups. The difference in prejudice between the information-induction ($M = .81$) and the interaction-induction ($M = .71$) was minimal and not significant, $F(1,37) = .172, p > .50$.

Overall, the results of the pilot study support the predictions that similar prejudicial attitudes can be induced using the two procedures.

Table 2

Ratings of the "Good" Group and the "Bad" Group from the
Pilot Study

Induction	n	Group Rating		
		"Good"	"Bad"	Difference (prejudice)
Information	15	5.01	4.20	.81
Interaction	24	4.49	3.78	.71

Note. Higher number represent more favoritism toward a particular group.

Results

Counterbalancing Effects

Due to the numerous situations and procedures each subject experienced, a complex system of counterbalancing was employed. The first set of analyses focused on the different types of counterbalancing used.

Each subject received material designed to create impressions of the target groups (Group X and Group Y). To counterbalance the material, half the subjects received a procedure designed to create a positive impression of Group X and a negative impression of Group Y. The remaining subjects received the opposite, a procedure designed to create a favorable impression of Group Y and a negative impression of Group X.

Two variables were created to control for this counterbalancing manipulation. These variables, which will be referred to (almost facetiously) as the "good" group rating and the "bad" group rating, encompassed the favorability ratings for the target groups, controlling for the counterbalancing manipulation.

Specifically, in the information-based condition, the group (Group X or Group Y) about which subjects received the most favorable material was considered the "good" group, and the other group (Group X or Group Y) was considered the "bad" group. In the interaction-based condition, the group (Group X or Group Y) for which subjects believed themselves

to be members, will be considered the "good" group, and the other group (Group X or Group Y) - the "bad" group.

Note that the effects of this counterbalancing would emerge in the following manner. Subjects' could have rated one group more favorably than the other because something in the group's label appealed to them. For example, an anticipated yet non-desired possibility was that subjects would favor Group X simply because the letter X precedes the letter Y in the alphabet. Results showed that this effect did not occur in either the interaction-induction condition $F(1, 98) < 1.0$ or the information-induction condition $F(1, 78) < 1.0$.

Other counterbalancing manipulations were examined also. Because subjects in the information-induction condition received the material via computer, four different "slide-shows" were produced. No effects were found because of this manipulation $F(3, 76) < 1.0$. Also, because 8 different computers were used in this induction conditions, these potential computer/room effects were examined. Results of this analysis showed that no room or computer effects were present $F(7, 85) < 1.0$. Finally, an analysis was computed to determine whether experimenter effects existed for any of the induction or persuasion conditions. None were found $F(1, 178) < 1.0$.

Main Analysis

The main hypothesis was that subjects who create group

prejudice through one means would reduce that prejudice only when another procedure engaged the same cognitive mechanisms that initially formed it. For example, once subjects formed group prejudice through an interaction-based induction procedure, they would reduce that prejudice only when presented with an interaction-based persuasion procedure. Therefore, the initial formation of group prejudice was an essential prerequisite for testing the hypothesis.

To test this, a 2 x 2 repeated-measures ANOVA (induction x group rating) was performed on the first ratings of favorability taken before the persuasion condition. This showed a significant interaction $F(1,178) = 5.82, p < .025$ that, when further analyzed, indicated that subjects in the interaction-induction condition rated members of the "good" group more favorably than members of the "bad" group $F(1,99) = 37.53, p < .001$. However, subjects' ratings of the target groups did not differ in the information-induction condition $F(1,79) = 1.02, p > .05$.

Unfortunately, this suggests that the hypothesis can be tested only on the data from subjects receiving the interaction-based induction procedure. It was in this condition, and only this condition, that prejudice was initially formed.

A 2 x 2 x 2 x 2 repeated-measures ANOVA (Induction x Persuasion x Time x Group Rating) was performed on the data. It was predicted that a significant 4-way interaction would

emerge. This would result from changes in prejudice from Time 1 to Time 2 in those conditions where the persuasion condition was most similar to the induction condition (interaction ind. -- interaction per. and information ind. -- information per.). Also, in conditions in which the persuasion was different from the induction, no change in prejudice was expected. This 4-way interaction was not significant $F(1, 176) < 1.0$.

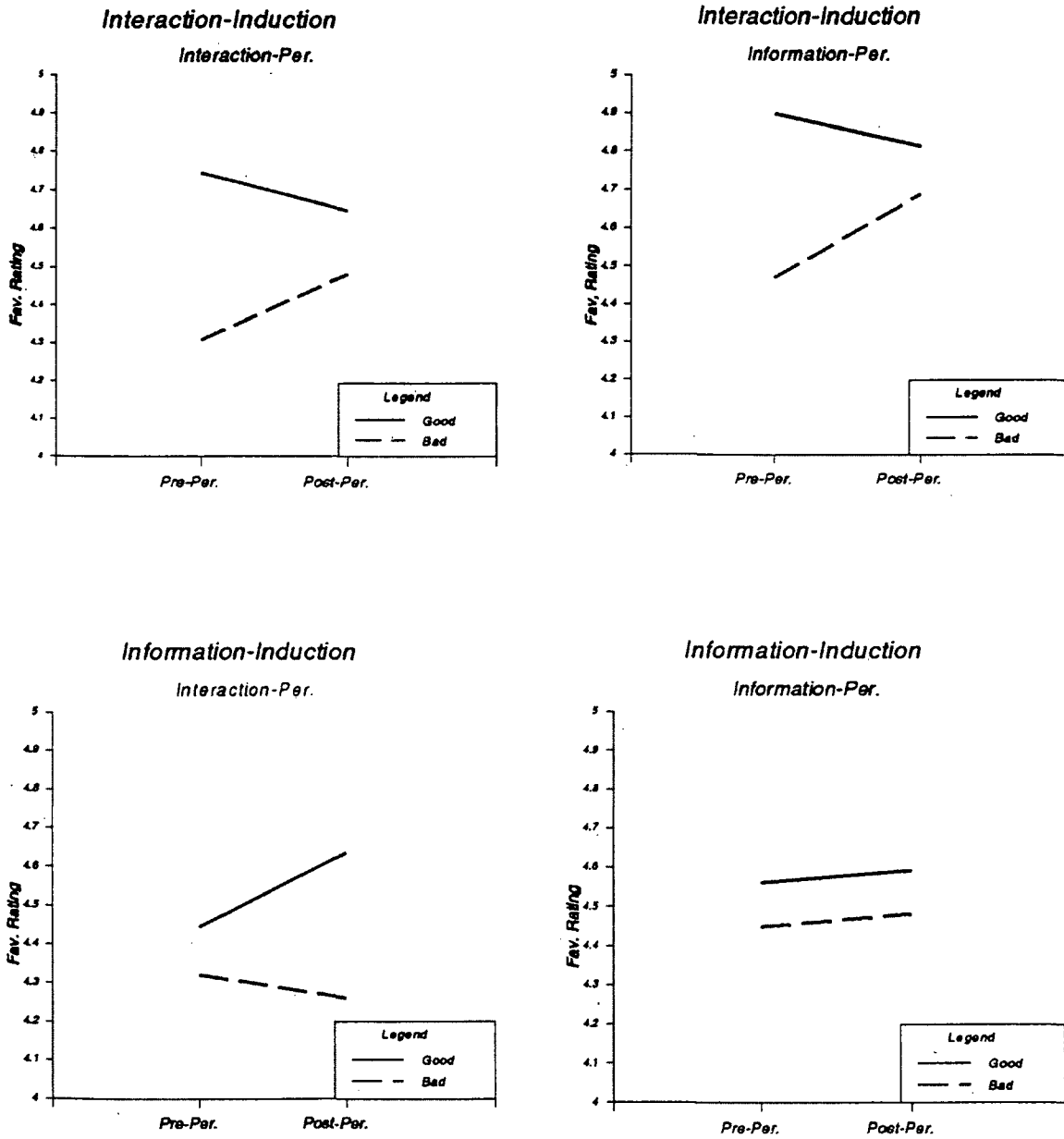
Three main effects were found. The first was an effect of group favoritism. Across all conditions, subjects rated the "good" group ($M = 4.68$) more favorably than the "bad" group ($M = 4.44$), $F(1, 176) = 21.13$, $p < .001$.

Figure 1 presents the data for all subjects in both induction and persuasion conditions. It can be seen that the ratings of the "good" group were consistently higher than those of the "bad" group, allowing this main effect to be interpreted despite any interactions.

An effect of induction also emerged. The ratings of both target groups (both "good" and "bad") were higher in the interaction-induction group ($M = 4.63$) than in the information-induction group ($M = 4.46$), $F(1, 176) = 5.62$, $p < .05$. This replicates the effect obtained in the pilot study.

Lastly, an effect was found for persuasion condition. Subjects in the information-persuasion condition rated both target groups more favorably ($M = 4.62$) than did subjects in

Figure 1



Subjects' mean favorability ratings of the "good" group and the "bad" group across induction and persuasion conditions.

the interaction-persuasion condition ($M = 4.48$), $F(1, 176) = 4.01$, $p < .05$.

The effect of group favoritism was anticipated. Given the results of the pilot study, the main effect of induction was also unsurprising. However, the main effect of persuasion was unexpected. These effects do not influence the testability of the hypothesis. Therefore, they will not be discussed further.

One interaction emerged from this analysis. There was a significant induction x time x group favoritism interaction $F(1, 176) = 7.57$, $p < .05$. This was further analyzed by performing two 2 x 2 (time x group favoritism) repeated-measures ANOVA's, one for each level of induction. A significant time x group favoritism interaction was found for subjects receiving the interaction-induction procedure $F(1, 99) = 13.56$, $p < .001$. An examination of these effects showed that subjects initially rated the "good" group higher than the "bad" group. Following both persuasion procedures (information and interaction), subjects changed their ratings of the groups such that the disparity between ratings of "good" and "bad" groups was decreased. Note, however, that this disparity decreased about equally in both persuasion conditions -- this fails to support the "process specificity hypothesis."

No change due to persuasion was found for subjects receiving the information-induction procedure $F(1, 79) <$

1.0, suggesting that the subjects' ratings of the "good" group and the "bad" group did not change. Remember that the initial ratings of the "good" group and the "bad" group did not differ in this condition. Thus, it is not surprising that the interaction was not significant.

Ancillary Analyses

Additional repeated-measures ANOVA's were performed to determine how subjects reduced the disparity between ratings of the "good" group and the "bad" group. This analysis tested the conceptual question of how subjects reduce prejudice. Did they increase ratings of the disparaged group or decrease ratings of the favored group? Perhaps a combination of both would emerge.

The previous analysis suggested that this additional examination was warranted only for subjects receiving the interaction-induction procedure. Only in this condition did the ratings of the "good" group and the "bad" group significantly differ following the induction procedure.

Subjects receiving the interaction-persuasion procedure did not significantly reduce their ratings of the "good" group, $F(1, 47) = 1.50$, ns. However, there was a near-significant trend toward subjects rating the "bad" group more positively $F(1, 47) = 3.37$, $p = .07$.

Similar results were found in those subjects receiving the information-persuasion procedure. Subjects' ratings of the "good" group did not change $F(1, 51) = 1.05$, ns.

But, ratings of the "bad" group did become more positive $F(1, 51) = 5.33, p < .05$.

Personal need for structure. Subjects were classified as having high or low personal need for structure. To accomplish this, the median was determined (4.0), and a median split was performed. Subjects with scores lower than 4.0 were considered low PNS, and subjects with scores higher than 4.0 were considered high PNS. Seven subjects' scores fell on the median, and these subjects were subsequently omitted from the analysis.

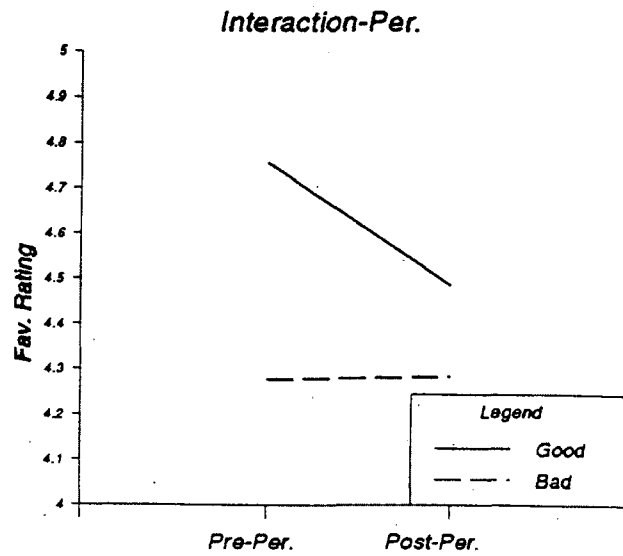
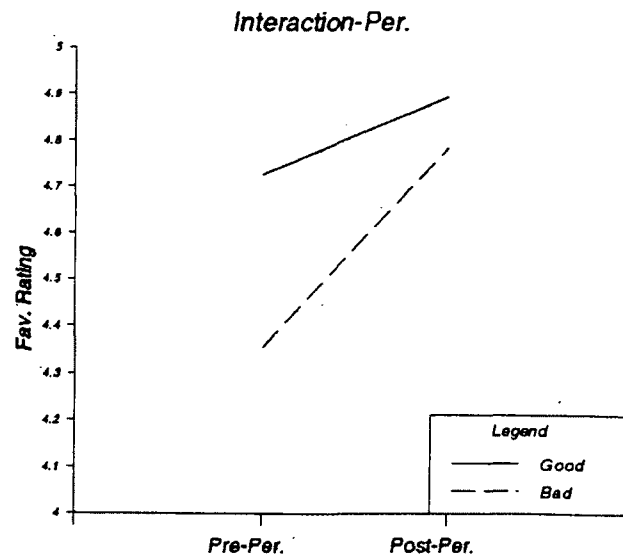
As with the previous analysis, the investigation of PNS focussed on subjects who received the interaction-based induction condition. To test whether PNS had any main effect, or moderated effects of other variables, a $2 \times 2 \times 2 \times 2$ (persuasion condition \times group rating \times time \times PNS) repeated-measures ANOVA was performed.

Only one effect emerged that involved PNS: A 3-way interaction of persuasion condition by time by PNS $F(1, 92) = 4.14, p < .05$. Two additional 2×2 (time \times PNS) repeated-measures ANOVAs were performed to investigate this finding more closely, one for each persuasion condition. For those subjects receiving the information-based persuasion procedure, level of PNS did not influence the results. However, it emerged as an important factor in subjects receiving the interaction-based persuasion procedure.

Figure 2 presents the data for both low and high PNS subjects receiving the interaction-induction procedure with an interaction-persuasion procedure. These subjects appeared to reduce the disparity between the ratings of the "good" group and the "bad" group in different ways dependent upon PNS. The results of the 2 x 2 repeated-measures ANOVA indicated that level of PNS influenced how subjects reduced prejudice. A significant PNS-split by time interaction was found $F(1, 44) = 12.34, p < .001$. This suggested that level of PNS influenced the way that subjects reduced prejudice.

To examine this more closely, additional analysis showed that low-PNS subjects rated the "good" group less positively following the persuasion $F(1, 28) = 5.83, p < .05$. They did not, however, change their ratings of the "bad" group $F(1, 28) < 1.0$. High-PNS subjects appeared to increase the ratings of both groups. Ratings of the "good" group significantly increased $F(1, 16) = 8.04, p < .05$, as did ratings of the "bad" group $F(1, 16) = 5.40, p < .05$.

Figure 2

Low PNS - Interaction-Ind.*High PNS - Interaction-Ind.*

Mean favorability ratings of the "good" group and the "bad" group for subjects scoring high or low on personal need for structure. This figure represents subjects who received an interaction-induction with an interaction persuasion.

Discussion

The main hypothesis was that once subjects formed impressions about groups in one fashion, any successful attempt to change these impressions must engage the same mechanisms that initially formed them. For the hypothesis to be fully tested, it was important that subjects form prejudice following the induction procedures. Although overall ratings of the "good" group were more favorable than those of the "bad" group, this initial prejudice effect was found in the interaction-induction condition only. Thus, a test of the hypothesis could occur only within this interaction-induction condition.

Subjects Receiving the Interaction-Induction

The hypothesis stated that subjects, having formed prejudice, would reduce it only when presented with an interaction-based persuasion procedure. This procedure was designed to be as similar to the induction as possible. Therefore prejudice should have been reduced following this procedure, which did occur. However, an unanticipated effect emerged. Those subjects receiving the interaction-based persuasion procedure also reduced their prejudice in an equally powerful manner. This effect did not conform to the primary hypothesis because prejudice was reduced equally whether subjects received a superordinate-group intervention or information showing the outgroup to be equally positive to the ingroup.

Consider two possible implications of these results. First, the primary hypothesis may be wrong. Although this hypothesis was similar to that conceived of by Edwards (1990), differences do exist. Edwards (1990) created impressions of objects by varying the order in which subjects received an affectively-laden slide or written information. Thus, in Edwards' study, subjects formed impressions about objects rather than groups. Perhaps the formation of group impressions or prejudice is processed differently than the impressions of tangible objects. In fact, research and theory by Srull and Wyer (1989) suggest that memory for groups differs from memory for objects. Their theory is based on an associative network model of memory in which behaviors and attributes are mentally represented by nodes. Each node is associated with other, similar nodes, by means of mental connections. When an individual activates a certain node, the others directly connected to it also become activated. This elicits the memory of an event, person or object.

Srull and Wyer (1989) suggest that when people have expectations about a particular group, two separate mental representations are produced. The first links behaviors and traits, and the second links behaviors and an overall evaluation of the person or group. The presence of these dual-links suggests that encoding group impressions is more complex than impressions formed with single-links, such as

impressions of objects. Therefore, since the encoding of group impressions may differ from the encoding of object impressions, the future processing of each impression may differ also. These considerations may account for the failure to find a process-specificity result analogous to that found by Edwards (1990).

Another possibility is that the conceptual hypothesis is correct but the conditions created for testing it were inadequate. Subjects formed only immediate impressions of both groups. Previous research has suggested that time is an important factor in impressions development (Hovland, Janis, & Kelly, 1953; Sherif et al., 1954). Intuitively, it seems that real-world prejudice does not occur overnight. Following an initial encounter with the target group (be it through information or interaction), an individual sustains and develops this prejudice through time. The theory behind associative network models of memory explains why time is a factor. These theories suggest that, once the material has been mentally encoded in nodes, initial links will connect each node. Each time the nodes are activated (i.e. the person remembers the event), more links are created between the nodes. This idea of alternative retrieval routes suggests that the memory of the event will be enhanced because of the development of these additional links (Anderson, 1990). Thus, time will serve to strengthen and solidify a newly formed prejudice. For this reason, the

primary process-specificity hypothesis may be correct, but the prejudice formed in this study was not of the same caliber as real-world prejudice, resulting in a failure to support this hypothesis.

In either case, the primary hypothesis was not supported. But the methods did allow for a test of some ancillary hypotheses that were, in themselves, interesting.

Previous work (Gaertner et al., 1990) suggests that interaction-based interventions reduce interaction-based prejudice by increasing the favorability of the formerly disparaged outgroup. In fact, the results of the current study replicated this finding within that condition.

But, past work has not offered any indication how subjects would reduce interaction-based prejudice when presented with an information-based intervention. Would they do so in the same manner as subjects receiving the interaction-intervention? Apparently, yes: the same pattern of prejudice reduction emerged within both conditions. This suggests that information depicting both groups as equivalent reduces categorization-based prejudice primarily through changing perceptions of the disparaged outgroup, rather than changing perceptions of the ingroup.

Although most of the "action" was in perceptions of the "bad" outgroup, subjects, in both conditions exhibited slight decreases in the perceived favorability of the "good" group. This was not a significant drop, and yet, it is worth

considering why it would happen. One possibility is that subjects were less confident about their initial ratings of each group following the interventions. This is evidenced through the reduction of prejudice that occurred. Along with changing their perceptions of the disparaged group, subjects may have felt that a more tempered, less enthusiastic response was justified in their perception of the favored group ("good" group). Thus, they decreased the favorability ratings of this group.

Personal Need for Structure (PNS)

Because Personal Need for Structure was an ancillary variable, no specific predictions of its influence on the results were made. However, one possibility, suggested by the conceptualization of PNS (Neuberg & Newsom, 1993), was that high PNS subjects would be less apt to reduce prejudice following any persuasion procedure. Because of their desire for clear, set boundaries, these people would not choose to modify their existing cognitive structures (stereotypes and prejudicial beliefs) when approached with new material.

The results showed no support for this hypothesis. Generally, PNS did not moderate the effects of prejudice reduction, and no broader effects of PNS occurred across conditions. However, one interesting result emerged within one experimental condition. PNS influenced the way prejudice was reduced among subjects who received the interaction- induction with an interaction-persuasion.

Subjects high in PNS exhibited prejudice reduction in a way similar to that observed by Gaertner et al. (1990). Although these people increased the favorability ratings of both groups, the magnitude of increase was greater for the "bad" outgroup. In contrast, among low PNS subjects, favorability ratings of the "bad" outgroup remained constant, but ratings of the "good" ingroup became less favorable.

Why subjects with differing levels of PNS responded as they did remains open to speculation. The correlations of PNS with other personality constructs may suggest one possible reason.

Previous research suggests that PNS is positively correlated with depressive symptomatology (Mikulincer, Yinon & Kabili, 1991) and social anxiety (Neuberg & Newsom, 1993). This indicates that PNS may be associated with an individual's self-esteem. In fact, preliminary research by Schaller (1993) found that PNS was negatively correlated with self-esteem, $r = -.38$, $p < .05$.

As Tajfel et al. (1971) suggest, self-esteem may play a critical role in the way individuals perceive their social environment. Social identity theory suggests that an individual would be more likely to embrace their ingroup if they felt socially threatened. In fact, other research suggests that a threatened self-esteem will cause individuals to favor their ingroup more (Cialdini &

Richardson, 1980; Finchilescu, 1986).

Therefore, it's possible that because of lower self-esteem, subjects high in PNS were more resistant to viewing their group in a less than favorable way. However, subjects low in PNS (and thus higher in self-esteem) may have been less resistant to perceiving their own group to be less favorable. Therefore they may have felt comfortable in reducing prejudice in this manner.

Subjects Receiving the Information-Induction Procedure

The results relevant to subjects in the information-induction conditions are statistically straightforward -- nothing happened. Although subjects did rate the "good" group more favorably than the "bad" group overall, this was not moderated by either persuasion procedure. Note that this effect was similar to one found by Edwards (1990). In that experiment, no differential processing occurred in the subjects receiving a cognitive induction. The implications of this effect are that object impressions formed through cognitive means and group prejudice formed through information-based procedures may both contain large affective and cognitive components. Thus, by storing these impressions as multi-dimensional psychological structures they may prove easily changed by or extremely resistant to any type of intervention.

One difference between the Edwards (1990) study and the current one was a marginal effect of the interaction-

intervention on subjects receiving this information-induction procedure. In fact, surprisingly, there was a non-significant tendency for the interaction-intervention actually to amplify, rather than reduce, the initial prejudice $F(1, 38) = 2.28, p = .14$. Why would this be so?

It's possible that the information-induction procedure acted as a seed for future processing of the target groups. Subjects may have formed tentative impressions of the target groups that they were unwilling to express on the rating scales. However, following the interaction-persuasion, they used the additional knowledge gained through interpersonal cooperation to solidify their opinions. In essence, presentation of the initial information served to bias the subjects. This bias was not exhibited in the initial ratings of the group but manifested later, after subjects had an opportunity to confirm initial, tentative inclinations during their interaction with the target group members.

If additional research finds a similar effect, then it would appear that prejudice was not being reduced through direct intergroup contact as postulated by the contact hypothesis (Allport, 1954). In fact, research on the contact hypothesis suggests that certain conditions must be met for prejudice reduction to occur through intergroup contact (Cook, 1985). In the present experiment, it appeared that four of five necessary conditions were met:

Subjects were of equal status, worked cooperatively to complete the goal, interacted in an informally structured environment, and seemed to view each other as typical of members of the other group (at least to the best of my knowledge). However, it is questionable whether the group contact occurred within a setting where the existing norms favored equality. If, as suggested, the initial, biasing information served as a seed for future processing, then this could influence these norms. Instead of looking at each group equally, they were searching to confirm initial perceptions of inequality. Thus, they were constrained by a desire to confirm their tenuous impressions of the groups.

Caveats and Comments

The goal of this study was to create and then remove group prejudice. Because of the failure of the primary hypothesis and the existence of many unpredicted effects, certain questions remain unanswered.

For example, prejudice was operationalized as the different favorability ratings of two novel groups. Although this worked for the current study, it does not fully capture the concept of group prejudice. One reason is that real-world prejudice often tends to be based on many years or decades of experience. Thus, the existence of a disparity between the ratings of two target groups (deemed prejudice for the purposes of this study) can not compare to a prejudicial attitude held for many years. It is possible

that given longer periods of interaction or more potent group classifications that the resultant group impressions would become more resilient. Perhaps only certain procedures would successfully change well-entrenched group impressions. Future research should attempt to create and maintain these impressions to ensure that they are well-formed before attempting to change them.

Another question is: why didn't subjects form initial prejudice following the information-induction procedure? This lack of effect was surprising, given that the effect did occur in the pilot study. Besides the possibility of an unfortunate fluke, another reason for the discontinuity may lie in a subtle methodological difference between the pilot study and the main experiment. In the main experiment, subjects in the information-induction condition were told that they were unclassifiable, and that they would be classified as member of Group X or Group Y later in the experiment. This may have caused subjects to refrain from "slamming" either group, as they may find out they were members of it later.

If this is a reason why subjects failed to form prejudice, it could be easily corrected by having subjects be members of a different group, say Group G.

Clearly, this study raises more questions than it has answers, identifies more problems than solutions. There is not a magical cure for the "disease" of prejudice. However,

the present study does indicate some directions for future research that may offer insights into the ways to combat this "plague."

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Appendix A
Experimenter's Script

Calling Subjects

When you call subjects ask them to participate in the Knowledge of People experiment. The experiment will be worth 2 units for their Psychology 100 class. Remember, we will be running single gender groups - only men or only women.

All normal subjects should go to room PhP 242, All alternate subjects should go to room PhP 320. Tell subjects that they must be at the rooms by 5 after the hour or they will be docked the units. Make this very clear to them so they will not be late.

Write the name of the subject on the calling sheet. Be sure to sign up 10 subjects total (8 normal subjects and 2 alternates)

Tell the alternates that they are alternates for this experiment. That means that they will participate only if other subjects do not show up. Tell them that if the normal subjects show up, the alternates will receive 1 unit for showing up and be allowed the opportunity to sign up for the experiment again. Therefore, they could get a total of 3 units for this experiment (1 unit for showing up as an alternate + 2 units for signing and participating in the overall experiment)

Script

The script should look something like this:

Subjects will be ushered into room 242 by the experimenters and placed at different locations by the experiments. Remember that the two alternates will be standing outside room 320.

At 5 minutes after the hour, the experimenters will assess how many subjects have arrived. If the alternates are needed then the experimenter will retrieve them to fill out the 8 people. If all 8 normal subjects show up, the experimenter will go to the alternates, give them 1 credit and ask them to sign up for another time. Alternates will not be reassigned to another alternate position -- they get first crack at a normal position.

Note: the experiment can be run with 6, 7 or 8 people. If it is 5 minutes after the hour and there are only 6 people there, wait for 2 or 3 minutes longer to see if more people show up. If they do not, run the experiment, and use the 6-people assignment in the assignment sheet. If only 5 people show up, give them all one unit for showing up and ask them to sign up for another time.

When an acceptable number of subjects are seated. The prime experimenter will go to the front of the room and welcome the subjects. The experimenter should say:

Welcome to the Knowledge of People experiment. My name is _____, and this is _____. We will be the experimenters for this research. Feel free to ask us any

questions you may have regarding the experiment.

The first thing we ask you to do is print your name, Psychology 100 section number, and your TA's name on the experimental credit sheet. This way we can be sure you receive the units for this experiment.

Pass around the credit sheet and make sure all subjects print their name, sections number and TA's name on the line provided.

Okay, now I'll tell you a little more about the experiment. We are looking at how individuals with a personality trait perform on a variety of different tasks. This personality trait, call asymbollism, is not one that represents some a troublesome characteristic -- instead it is one that most people tend to have to one degree or another and is of interest to this research.

The way we assessed asymbollism was through a series of questions you filled out on February 3 at the Psychology 100 screening. Contained within the questionnaires were questions which allowed us to classify you as belonging to one of three categories. Each of you either: A) possesses the personality trait in question, B) definitely does not possess the personality trait, or C) could not be classified as possessing or not possessing the trait.

The reason some of you are unclassified is because the questions from the screening do not make fine discriminations possible. Therefore, for the unclassified

people, your scores fell somewhere in the middle on the personality trait -- you were neither high enough to definitely possess the trait nor low enough to not possess the trait. However, this does not mean you do not fall into one of the two groups, we simply need more testing to determine whether you possess the trait. In fact, closer to the end of the experiment we will ask you fill out another questionnaire so we can see if you possess the trait of asymbolism or not. For now, though, that distinction is not important.

Oh, once again I want to point out that this trait is not something bad. I want to stress that possessing or not possessing this trait is in no way a predictor of an kind of problem.

Note: if subject ask why we don't care about whether they possess the trait or not, just tell them we are interested in them as people who fall in the middle; people in the grey area between possessing the trait and not.

After reading the above information, give out the classifications as determined by the list. However, remember to go to the front of the room and pretend to check the computer printout so subjects will believe we have an overall list of their names and classifications.

Okay, now we will hand out the group memberships. I ask each of you to take a colored tag and write your name on it. As you can see, there are 8 name tags, 4 white, 2 blue

and 2 green. Using the information collected from the screening, we could call the proper amount of subjects to be in each group. Therefore, 4 of you are unclassified, 2 definitely possess the trait and 2 definitely do not possess the trait. The white tags are for the individuals who are unclassified. To remove any bias, I will not be telling the classified subjects whether they possess the trait or not. Therefore, they will be referred to as members of either Group X or Group Y. Now, before I call everyone up to get a nametag, please remember where you are sitting. I will be asking you to return to these seats later in the experiment.

If you are in Group X, please come up and take a blue tag, write your name on it and stand over in this area. If you are in Group Y, take a green tag, write your name on it and stand over in this area. Those people who are unclassified, take a white tag, write your name on it and stand in the back. Are there any questions?

Feel free to answer any questions concerning the procedures. Remember not to give anything away, but make sure they understand where they should be and what they should do. The most important thing is to have each subject get a name tag, write their name on it, put it on their clothes and be seated at the correct table. Move subjects to the proper tables if needed. Remember that they are looking for you to give them instructions about what to do. You may have to be very basic in the things you tell them,

but it is important they are not overly confused.

At this point we should be ready to start the main experiment. One of the experimenters must take the classified subjects up to room 320 while the other handles the remaining unclassified subjects in room 242.

To conduct the experiment, we need to take some of you to a different room. At this time I (or the other experimenter) ask all the members of Group X and Group Y to follow me. Feel free to leave your things here as we will be returning to this room shortly. The remaining unclassified subjects will stay in this room with me (or the other experimenter).

Now one experimenter takes the classified subjects up to room 320 and leads them in. Once they are all inside room 320, the experimenter will place the members of Group X in the back room and the members of Group Y in the front room. Feel free to alternate which group is placed in the back or front of room 320.

Experimenter in Room 320

For this part of the experiment, I ask that you all work in the team for which you are members, either Team X or Team Y. You will receive a score for your team. This score will be compared, not only against the members of the other group here today, but also an overall score for all the people, who have participated in this experiment, in Team X will be compared to an overall score for all the people in

Team Y. So, please try to do your best.

This task is fairly challenging and will require both members of each team working together to get the best score.

Here are the instructions for the task. < HAND EACH GROUP ONE OF THE COLORED INSTRUCTION SHEETS AND READ THE INSTRUCTIONS WHILE THEY FOLLOW ALONG -- AFTER YOU HAVE FINISHED CONTINUE > In a couple of minutes, I will be handing out the answer sheets for this task. Each of your teams will have 3 minutes to rate all the items for their importance. When the time is up, I will collect the sheets and score them. Then I will tell both teams their respective scores. At that time, you will have a chance to better your score. I will return the answer sheets for 2 minutes. At that time you may change your item rankings in an attempt to better your scores. After this second try, both teams will again receive feedback from me regarding your score and then they will have a third attempt to better their scores. However, you will only have one minute to do so. Are there any questions before I hand out the ranking sheets?

At this time, hand out the ranking sheets and start timing the teams. Be sure to partially close the door between the two groups -- this will give the teams more privacy. Time the teams for 3 minutes. When 3 minutes have past, collect the rankings and pretend to score them.

Remember that the scores you tell the subjects will come

from the book. Announce the scores for each team.

Hand back the ranking sheets and tell them they have 2 minutes to rerank the items. Collect the sheets and pretend to score. Announce the second scores from the book (UNLESS A TEAM HAS NOT CHANGED ANY ANSWERS -- THEN IMPROVISE THE SCORES AND KEEP A RECORD IN THE JOURNAL) Hand back the ranking sheets and time for 1 minute, collect, rescore and then announce:

Your final, overall score takes into account the number of changes you have made and the correctness of your last ranking. Therefore, it will take a while to figure out which team ranked the items most correctly. In the meantime, please collect any personal items you may have and follow me.

Lead the subjects back to room 242 and have them be seated in the chair they originally sat in at the beginning of the experiment.

Experimenter in Room 242

In this part of the experiment, you will receive general information about members of Group X and Group Y. Please attempt to get a feeling for the members in Group X and Group Y based on this information. This will be presented by the computer. All I ask you to do is go into one of the small cubicles around the side of the room, be seated comfortably, and press the ENTER key once. The program is automatic and you will not need to press any

other keys. Read each statement silently as it is presented and attempt to understand each group from this information.

Now I will assign you to the individual cubicles.

When everyone is seated, ask them to press the enter key to begin the program. Stress that they need to press the enter key only once for the program to run.

At the end of the program, ask the subject to return to the seats they originally were seated when they entered the room. Wait for the members of the second group to return.

Everyone Back in Room 242

Now that everyone is back, we ask that you fill out a simple 4 page questionnaire. Try to fill this out as best you can. Some of the questions may be difficult to answer, but attempt to answer each one based on your feelings and information. You may be asked to fill out questionnaires a couple different times during the experiment. We do this so we can pick up any subtle changes in attitude through the experiment.

Hand out the attitude assessment questionnaire and make sure all the subjects fill it out. Collect the questionnaires when the subjects are finished with them and write their ID number at the top of their questionnaire.

Information Condition

All subjects in this condition will be receiving information about Groups X and Group Y. The procedures will be similar to those described above.

For the next part of the experiment, we will ask you to be seated in front of computers and receive additional information about the members of Groups X and Group Y. For some of you, this will be similar to the task you just completed. Please read all the statements silently and attempt to get a better understanding for the members of Group X and Group Y. In a couple of moments, we will be splitting you into the individual cubicles you see around the room. Because we do not have enough computers for everyone, two of you will be escorted up to room 320 to receive the information there. Once you are seated in front of the computer, I will give the signal to press the enter key once. The program is automatic and you need not press any other keys. At that time, watch the slide show to the end and then I will give further instructions.

Take two subjects up to room 320, preferably those subjects who were stuck in room 242 for the information induction. These people will not have been out of the room. Do not choose the subjects who just came down from room 320 as they may get annoyed at having to return.

When the slide show is over, have all subjects return to the seats they originally started from at the beginning and prepare for the last attitude assessment.

Interaction Condition

For these folks, the cooperation condition is similar to the one that Group X and Group Y just completed. At this

point, all subjects will be in the room and seated at their original starting seats.

In this part of the experiment, we are interested in how people interact to solve different tasks, and if the interactions are effective. Therefore, we wish to see how well all 8 of you can complete a given task. At this time, _____ (the other experimenter) and I will seat you around this large table. < SEAT SUBJECTS IN THE FOLLOWING MANNER (UXUYUXUY) AROUND THE LARGE TABLE >

Because you will all be competing against the other 8-person groups participating in this experiment, you will need a group identification. Therefore, we ask you to choose your preferences on a few items. First of all, you will need a new color for your team, would you like red or yellow badges < WAIT FOR CHOICE AND THEN DISTRIBUTE THE COLOR CHOSEN -- ASK SUBJECT TO ATTACH THE BADGES ABOVE THE ONES THEY ALREADY HAVE > Another thing you will need is a name, do you wish to be the Wolves or the Falcons. < WHEN SUBJECTS CHOOSE A NAME, WRITE IT ON THE MOVABLE WHITE-BOARD AND PREPARE FOR THE PHOTO >

The last thing we want is a way of giving credit when the group with the highest score is found. For this we will be taking a photo of your group with the group name featured in it. We will be placing the photo outside PhP 213 so that all subjects who participated in this experiment will be able to see which group achieved the best score on the test.

Are there any questions before we take the photo?

< IF THERE ARE NO QUESTIONS, TAKE THE PHOTO AND PLACE THE WHITE-BOARD WITHIN VIEW OF THE SUBJECTS >

Now we can move on to the task. This task will be very similar to the one that some of you just finished. Here is an instruction sheet, feel free to read silently as I read the directions out loud. < READ THE DIRECTIONS FOR THE TASK > In a couple of moments I will be handing out the item ranking sheet. Work as a group to decide which items are the most important. Initially you will have 3 minutes to rank the items. At that time I will score the items and return them to you for a second try. You will have 2 minutes for the second try. Following that, I again will score your responses and return the sheet for a final try. But you will only have 1 minute to complete this last attempt.

At this time hand out the item response sheets and time subjects as they complete the task. Follow this with the second attempt and finally the third. Remember that for the first two attempts, the scores you tell subjects are from the instructors book and not their actual scores. When the subjects finish the third attempt, say:

Your final score depends upon your first two attempts and the correctness of your final ranking. Therefore, it will take me a few minutes to complete the scoring. In the meantime, please return to your original seats, the ones you

sat in when you arrived. < WAIT UNTIL SUBJECTS ARE SEATED >
While I'm correcting the answer sheets, please fill out this
questionnaire again. Try to answer each question as best
you can with the knowledge you have. The reason we ask the
same questions is that in many situations an individual's
responses change when they have acquired new information.
Take as much time as you need to complete the questionnaire.

Have one experimenter pretend to be working on the answer sheets. (In fact, this experimenter should leave the room to ostensibly complete the scoring at another location) and the other pass out the questionnaires. While subjects are working on the questionnaire, ask them to place the questionnaire face down in front of them when they are done. When everyone has completed the questionnaire, say:

We still have a few minutes before the other
experimenter is finished with the scoring. I have another
question that I would appreciate your response to.
Sometimes experiments, like this one, are talked about among
the psychology 100 students. Although we would like to see
subjects coming into an experiment with no previous
knowledge of the upcoming procedures, we realize this does
occur. At this time, you all have the experimental credit
for this experiment. Therefore, it would benefit us greatly
if you would write down what you heard or knew about this
experiment before you ran through it. This would greatly
help us to analyze the data and further this project.

Because this is anonymous, we will not be able to trace the names to the people nor will we penalize anyone for disclosing that they were aware of some or all of the procedures. Take some time to answer this on the back of your questionnaire.

When the other experimenter returns to the room, the first experimenter will begin the debriefing.

Thank you for being so patient in filling out the questionnaires and answering the questions. I have just a couple of more questions to ask you. Below what you have written on the back of the questionnaire, please put an number 1. After this, please write down your thoughts on the personality trait of asybollism we were investigating. < AFTER EVERYONE IS DONE >

Debriefing

In fact, completion of the last question was the end of the experiment. There are some things I have to tell you about the experiment. In actuality, this experiment is testing to see how people form impressions about groups.

The truth is that each of you is not in a particular group due to questions you filled out during the screening; you were randomly assigned to be in Group X, Group Y or unclassified. This is because there is no personality variable named asymbollism that we are looking at. This small deception was necessary to achieve the control needed in this experiment. The scientific benefits were carefully

weighted before this experiment was allowed to continue. It was determined that the benefits justified the small deception.

We assigned you to different groups to see if you would form impressions about Groups X and Y in different ways. Some of you were asked to form impressions by watching a computer present information about the two groups. Other subjects were asked to interact with people from, what they considered to be, the other group. We are investigating whether the way that attitudes form influence how individuals later think about a particular group.

< SAY THIS NEXT SENTENCE ONLY IF SUBJECTS PARTICIPATED IN THE INTERACTION CONDITION >

In addition to this, there is no competition going on, nor will your photo be displayed outside PhP 213.

If you have any concerns about this research please feel free to talk to me after the experiment. If you wish to talk to my supervisor, you may call or write Dr. Mark Schaller, Psychology Dept, U. of Montana. His telephone number is 243-4371. Feel free to contact him with any concerns you may have about this experiment.

Are there any questions at this time? If not, I have a request. This research has taken many months to devise and formulate. It is very important that your classmates do not know the real reason behind what we are looking at. I ask you, please, do not tell your friends what this is

about. If they ask, please tell them something like : "It has to do with the ways that groups interact" It is very important that we keep this secret, can we count on your help for that?

Now I will go through the correct answers to the ranking that each of you did. Some of you did not have this ranking task to do, therefore you may leave if you wish.

< GO THROUGH ANSWERS, ASK FOR QUESTIONS -- IF NONE,
DISMISS THE SUBJECTS >

Appendix B

NASA Team Exercise

You are a member of a space crew originally scheduled to rendezvous with a mother ship on the lighted surface of the moon. Due to mechanical difficulties, however, your ship was forced to land at a spot some 200 miles from the rendezvous point. During landing, much of the equipment aboard was damaged, and, since survival depends on reaching the mother ship, the most critical items available must be chosen for the 200-mile trip. Below are listed the fifteen items left intact and undamaged after landing. Your task is to rank order them in terms of their importance to your crew in allowing them to reach the rendezvous point. Place the number 1 by the most important item, the number 2 by the second most important, and so on, through number 15, the least important.

This is an exercise in group decision-making. Your group is to employ the method of Group Consensus in reaching its decision. This means that the prediction for each of the fifteen survival items must be agreed upon by each group member before it becomes a part of the group decision. Consensus is difficult to reach. Therefore, not every ranking will meet with everyone's complete approval. Try, as a group, to make each ranking one with which all group members can at least partially agree. Here are some guides to use in reaching consensus:

- (1) Avoid arguing for your own individual judgments. Approach the task on the basis of logic.
- (2) Avoid changing your mind only in order to reach agreement and avoid conflict. Support only solutions with which you are able to agree somewhat, at least.
- (3) Avoid "conflict-reducing" techniques such as majority vote, averaging, or trading in reaching your decision.
- (4) View differences of opinion as helpful rather than as a hindrance in decision-making.

Rank the following items according to their importance to your survival, starting with 1 for the most important one and proceeding to 15 for the least important one.

Item	Rank 1	Rank 2	Rank 3
Box of matches	_____	_____	_____
Food concentrate	_____	_____	_____
50 feet of nylon rope	_____	_____	_____
Parachute silk	_____	_____	_____
Portable heating unit	_____	_____	_____
Two .45 calibre pistols	_____	_____	_____
One case dehydrated milk	_____	_____	_____
Two 100-lb. tanks of oxygen	_____	_____	_____

Stellar map - of the	_____	_____	_____
moon's constellation			
Life raft	_____	_____	_____
Magnetic compass	_____	_____	_____
5 gallons of water	_____	_____	_____
Signal flares	_____	_____	_____
First-aid kit containing	_____	_____	_____
injection needles			
Solar-powered FM	_____	_____	_____
receiver-transmitter			

Appendix C

Personal Need for Structure Scale

Read each of the following statements and decide how much you agree with each according to your attitudes, beliefs, and experiences. Place your rating in the space to the left of each statement. Please respond according to the following scale:

- 1 Strong disagreement
- 2 Moderate disagreement
- 3 Slight disagreement
- 4 Neither disagreement nor agreement
- 5 Slight agreement
- 6 Moderate agreement
- 7 Strong agreement

- _____ 1. It upsets me to go into a situations without knowing what I can expect from it.
- _____ 2. I'm not bothered by things that interrupt my daily routine.
- _____ 3. I enjoy having a clear and structured mode of life.
- _____ 4. I like to have a place for everything and everything in its place.
- _____ 5. I enjoy being spontaneous.
- _____ 6. I find that a well-ordered life with regular hours makes my life tedious.
- _____ 7. I don't like situations that are uncertain.
- _____ 8. I hate to be with people who are unpredictable.
- _____ 9. I hate to change my plans at the last minute.
- _____ 10. I find that a consistent routine enables me to enjoy life more.
- _____ 11. I enjoy the exhilaration of being in unpredictable situations.

- _____ 12. I become uncomfortable when the rules in a situation are not clear.

Appendix D

Favorability Scale

Below are a number of questions. Using your knowledge of group X and group Y, circle the response that best represents your personal feelings. Please answer all the questions and, please, circle only one response.

Listed below are a number of attributes which, while not true of all members of any group, might be more characteristic of the members of one group than the other. For each of the attributes, please indicate how likely you think it is that that characteristic is descriptive of the members of each group. Circle a response for each group. Please rate your opinions using the following scale:

- 1 Very non-descriptive
- 2 Moderately non-descriptive
- 3 Slightly non-descriptive
- 4 Unsure
- 5 Slightly descriptive
- 6 Moderately descriptive
- 7 Very descriptive

Popular

Group X	1	2	3	4	5	6	7
Group Y	1	2	3	4	5	6	7

Irresponsible

Group X	1	2	3	4	5	6	7
Group Y	1	2	3	4	5	6	7

Trustworthy

Group X	1	2	3	4	5	6	7
Group Y	1	2	3	4	5	6	7

Happy

Group X	1	2	3	4	5	6	7
Group Y	1	2	3	4	5	6	7

Unsociable

Group X	1	2	3	4	5	6	7
Group Y	1	2	3	4	5	6	7

Loyal

Group X	1	2	3	4	5	6	7
Group Y	1	2	3	4	5	6	7

Honest

Group X	1	2	3	4	5	6	7
Group Y	1	2	3	4	5	6	7

While waiting for your airplane to arrive, you encounter a person. You quickly begin a conversation and discover you have many things in common with this other person: interests, goals, experiences, etc. What may be the group membership of this person?:

- 1 Definitely believe the person is a member of group Y
- 2 Moderately believe the person is a member of group Y
- 3 Slightly believe the person is a member of group Y
- 4 Unsure
- 5 Slightly believe the person is a member of group X
- 6 Moderately believe the person is a member of group X
- 7 Definitely believe the person is a member of group X

You are the chief executive of an engineering firm and must hire a new program director. You have interviewed many people and discover they all seem to be qualified. Knowing what you do about the two target groups - who would you be more likely to hire?:

- 1 Definitely favor a member of group X
- 2 Moderately favor a member of group X
- 3 Slightly favor a member of group X
- 4 Unsure
- 5 Slightly favor a member of group Y
- 6 Moderately favor a member of group Y
- 7 Definitely favor a member of group Y

A college freshmen takes calculus and receives a D for a course grade. What could the students membership be?:

- 1 Definitely believe the person is a member of group Y
- 2 Moderately believe the person is a member of group Y
- 3 Slightly believe the person is a member of group Y
- 4 Unsure
- 5 Slightly believe the person is a member of group X
- 6 Moderately believe the person is a member of group X
- 7 Definitely believe the person is a member of group X

A room is filled with 100 people. Of these, 50 people are members of group Y and 50 people are members of group X. One person is chosen at random from the room of 100 and fills out a questionnaire. You discover she: (a) owns and

operates her own company (b) enjoys reading books and (c) is an excellent communicator. What are the chances this person is from group X?:

1	100 %	4	50%	7	0%
2	80 %	5	30%		
3	65%	6	15%		

Suppose you are a judge giving out points to one members of each group. The points can be exchanged for a variety of different prizes. However, you can only distribute the points in one of the following ways - which would you choose?

1. 9 points to person in group X / 2 points to person in group Y
2. 9 points to person in group X / 7 points to person in group Y
3. 18 points to person in group X / 9 points to person in group Y
4. 7 points to person in group X / 7 points to person in group Y
5. 18 points to person in group Y / 9 points to person in group X
6. 9 points to person in group Y / 7 points to person in group X
7. 9 points to person in group Y / 2 points to person in group X

In general, how do you feel about the two groups?

1. I strongly favor group X over group Y
2. I moderately favor group X over group Y
3. I slightly favor group X over group Y
4. I neither favor group X nor group Y
5. I slightly favor group Y over group X
6. I moderately favor group Y over group X
7. I strongly favor group Y over group X

Rate how well-suited members of group X and group Y are for each of the following occupations using the following scale. Write your answer in the blank next to the corresponding group.

1. Extremely unsuited
2. Moderately unsuited
3. Slightly unsuited
4. Unsure
5. Slightly well-suited
6. Moderately well-suited
7. Extremely well-suited

Corporate Attorney

Software Engineer

Group X _____
 Group Y _____

Group X _____
 Group Y _____

Please answer the following questions to the best of your ability and circle the number corresponding to your answer.

1. Working together

1. I believe that I would very much dislike working with members of group X in an experiment
2. I believe that I would dislike working with members of group X in an experiment
3. I believe that I would dislike working with members group X in an experiment to a slight degree
4. I believe that I would neither particularly dislike nor particularly enjoy working with members of group X in an experiment
5. I believe that I would enjoy working with members of group X in an experiment to a slight degree
6. I believe that I would enjoy working with members of group X in an experiment
7. I believe that I would very much enjoy working with members of group X in an experiment

2. Personal feelings

1. I feel that I would probably like members of group X very much
2. I feel that I would probably like members of group X
3. I feel that I would probably like members of group X to a slight degree
4. I feel that I would probably neither particularly like nor particularly dislike members of group X
5. I feel that I would probably dislike members of group X to a slight degree
6. I feel that I would probably dislike members of group X
7. I feel that I would probably dislike members of group X very much

3. Personal feelings

1. I feel that I would probably like members of group Y very much
2. I feel that I would probably like members of group Y
3. I feel that I would probably like members of group Y to a slight degree

4. I feel that I would probably neither particularly like nor particularly dislike members of group Y
5. I feel that I would probably dislike members of group Y to a slight degree
6. I feel that I would probably dislike members of group Y
7. I feel that I would probably dislike members of group Y very much

4. Working together

1. I believe that I would very much dislike working with members of group Y in an experiment
2. I believe that I would dislike working with members of group Y in an experiment
3. I believe that I would dislike working with members of group Y in an experiment to a slight degree
4. I believe that I would neither particularly dislike nor particularly enjoy working with members of group Y in an experiment
5. I believe that I would enjoy working with members of group Y in an experiment to a slight degree
6. I believe that I would enjoy working with members of group Y in an experiment
7. I believe that I would very much enjoy working with members of group Y in an experiment

Appendix E

Wilderness Team Exercise

You have just crash-landed in the woods of northern Minnesota and southern Manitoba. It is 11:32 A.M. in mid-January. The light plane in which you were traveling crashed on a lake. The pilot and copilot were killed. Shortly after the crash the plane sank completely into the lake with the pilot's and copilot's bodies inside. None of you are seriously injured and you are all dry.

The crash came suddenly, before the pilot had time to radio for help or inform anyone of your position. Since your pilot was trying to avoid a storm, you know the plane was considerably off course. The pilot announced shortly before the crash that you were 20 miles northwest of a small town that is the nearest known habitation.

You are in a wilderness area made up of thick woods broken by many lakes and streams. The snow depth varies from above the ankles in windswept areas to knee-deep where it has drifted. The last weather report indicated that the temperature would reach minus 25 degrees Fahrenheit in the daytime and minus 40 at night. There is plenty of dead wood and twigs in the immediate area. You are dressed in winter clothing appropriate for city wear - suits, pantsuits, street shoes, and overcoats.

While escaping from the plane, the several members of your group salvaged 12 items. Your task is to rank these

items according to their importance to your survival, starting with 1 for the most important item and ending with 12 for the least important one.

You may assume that the number of passengers is the same as the number of persons in your group, and that the group has agreed to stick together.

Rank the following items according to their importance to your survival, starting with 1 for the most important one and proceeding to 12 for the least important one.

Item	Rank 1	Rank 2	Rank 3
Ball of steel wool	_____	_____	_____
Newspapers (one per person)	_____	_____	_____
Compass	_____	_____	_____
Hand ax	_____	_____	_____
Cigarette lighter (without fluid)	_____	_____	_____
Loaded .45 caliber pistol	_____	_____	_____
Sectional air map made of plastic	_____	_____	_____
20-ft by 20-ft piece of heavy-duty canvas	_____	_____	_____
Extra shirt and pants for each survivor	_____	_____	_____

Can of shortening	_____	_____	_____
Quart of 100-proof whiskey	_____	_____	_____
Family-size chocolate bar (one per person)	_____	_____	_____