A cognitive approach to the study of ingroup bias: role of reasons

Okhee Park Hong
Iowa State University

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A cognitive approach to the study of ingroup bias:
Role of reasons

by

Okhee Park Hong

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1988
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CHAPTER I. INTRODUCTION

Many social psychological studies on intergroup relations show that people have a tendency to evaluate the ingroup more favorably than the outgroup. This phenomenon is called ingroup bias. Tajfel and Turner define ingroup bias as the tendency to favor the ingroup over the outgroup in evaluations and behavior (Tajfel and Turner, 1979:38). It is generally recognized that ingroup bias is an omnipresent feature of intergroup relations. Ingroup bias is a kind of intergroup behavior. Intergroup behavior, according to Sherif, is any behavior displayed by one or more actors toward one or more others that is based on the actors' identification of themselves and the others as belonging to different social categories (Turner and Giles, 1981b:7). Intergroup behavior can be defined as social interaction between members of different social groups.

We can find the existence of ingroup bias in everyday life. A long time ago Sumner studied ethnocentrism (Sumner, 1959). He recognized ethnocentrism as a view of things in which one's own group is the center of everything and all others are scaled and rated with reference to it. It involves positive attitudes toward an ingroup and negative attitudes toward outgroups.
According to Sumner, ethnocentrism has three major facets. First, ethnocentrism is a syndrome involving mutually reinforcing interactions among attitudinal, ideological, and behavioral mechanisms that promote ingroup integration and outgroup hostility. Second, this syndrome is a universal concomitant of the formation and differentiation of social groups. Third, it is functionally related to intergroup conflict and competition (Brewer, 1986:89). Rosenblatt (1964) argues that ethnocentrism satisfies psychic needs, i.e., it has a motivational factor. The greater are the perceived or expected psychic rewards of the ingroup and/or the less are the perceived or expected psychic rewards of the outgroup, the greater the ethnocentric needs. By associating oneself with a group which has traditions of victory, strength, goodness, and success, one receives the rewards of these vicariously. Such ethnocentrism represents ingroup bias in everyday life.

In the 1950s, Allport investigated characteristics of prejudice. He argues that all thinking involves categorization, and that categorization implies distortions and simplifications. People have a propensity to prejudice and this propensity lies in our normal tendency to form generalizations and categories. According to Allport, prejudice is an avertive or hostile attitude toward a person
who belongs to a group, simply because he/she belongs to that group, and is therefore presumed to have the objectionable qualities ascribed to the group (Allport, 1954:7). He indicated that people often form judgments on the basis of scant, even nonexistent, probabilities. Overcategorization is the commonest trick of the human mind. The human mind must think with the aid of categories. Once formed, categories are the basis for normal prejudgment, and orderly living depends on it. Everywhere we find a condition of separateness among groups. He even proposed five levels of rejection of outgroups: antilocution, avoidance, discrimination, physical attack, and extermination. Allport's analysis also suggests the pervasiveness of ingroup bias in everyday life.

We often stereotype a person as a member of a group. An individual becomes the object of a stereotype after he/she has been placed into a category. Such stereotyping is thus a categorization process. Taylor (1981) indicates that people have a general stereotype of their own group as good and of outgroups as bad, and use this stereotype as a guideline for their behavior. As such, the ingroup bias phenomenon is quite general. When researchers investigate ingroup bias phenomenon, they usually study it both in experimental small group situations and in large groups which exist in a real world.
The study of ingroup bias has been active in the area of social psychology for a long time, especially since the 1960s and early 1970s when Tajfel et al. (1971) proposed a new theory called social identity theory. Since then, the most recognized and powerful theory about ingroup bias has been social identity theory although there are several other theories or hypotheses to explain ingroup bias.

Tajfel and his colleagues investigated the effect of social categorization on discrimination in terms of the operation of social comparison processes between groups and every person's need for a positive social identity. Social identity theory elaborates the relationship between perceived social identity and intergroup comparison, and argues that social comparisons give rise to processes of mutual differentiation between groups which can be analyzed as a form of social competition, i.e., conflict of group interests (Turner, 1975). Tajfel and Turner (1979) contend that much of the work on the social psychology of intergroup relations has focused on patterns of individual prejudice and discrimination and on the motivational sequences of interpersonal attraction. The common feature of most of this work has been the stress on the intraindividual or interpersonal psychological processes leading to prejudiced attitudes or discriminatory behavior. Thus the complex
interweaving of individual or interpersonal behavior with the contextual social processes of intergroup conflict and their psychological effects has not been the focus of many social psychologists.

The alternative to these approaches has been suggested by Sherif and referred to as the realistic group conflict theory. However, Tajfel proposed social identity theory as a supplement to the realistic group conflict theory. While the latter emphasizes the objective aspects of group relations, social identity theory focuses on the subjective aspects of it.

The specifics of social identity theory will be discussed in another chapter. The theory focuses on the process underlying the development and maintenance of group identity and on the autonomous effects of these subjective aspects of group membership upon the ingroup and intergroup behavior. The phenomenon of identification with the ingroup is basic in social identity theory. The main argument of the theory is that individuals strive to achieve or maintain positive social identity, and that this positive social identity is based to a large extent on favorable comparisons that can be made between the ingroup and some relevant outgroups. The need for a positive self-concept and positive social identity leads to positive evaluation of
one's own group through ingroup/outgroup comparisons and thus to ingroup bias. According to the theory, simply categorizing individuals into social groups is enough to produce ingroup bias. Furthermore, the theory is based on the assumption of existence of the need for a positive social identity, and is thus a motivationally oriented theory.

There has been much research to support social identity theory, and the evidence supporting the theory seems impressive. However, although social identity theory is the dominant theory so far and has been proved to be valid, there is no consensus among scholars about an adequate theoretical explanation of ingroup bias. For example, Hinkle and Schopler (1979), while introducing eight major theories or hypotheses to explain biases in evaluations of group performance, concluded that there is a lack of major theory about group evaluation bias. Although there are quite a number of arguments for ingroup bias, most of them only remain at a hypothetical level and do not form coherent theory. Such lack of theory means a lack of understanding of the mechanism underlying ingroup bias. Therefore, there is current need for a new, more powerful explanation.

The objective of this paper is to suggest a new theory and thus to contribute new knowledge to the issue of ingroup
bias. The paper will propose a new explanation by borrowing one of the theories of group polarization and by synthesizing it into ingroup bias research. That theory is called persuasive arguments theory. Unlike social identity theory, a new approach based on persuasive arguments theory is a cognitively oriented approach. Whilst social identity theory argues that ingroup bias originates from motivation for a positive social identity, ingroup bias may not be based on such motivation or need, but rather on some cognitive process. As an alternative to social identity theory the paper proposes and draws its hypotheses from persuasive arguments theory to explain ingroup bias.

Persuasive arguments theory has been one of the major theories to explain group polarization or choice shift phenomenon. The theory contends that new and persuasive arguments heard by members during group discussion are the mediator of choice shifts effects. Group-induced response shifts occur because certain persuasive arguments which are not known initially by all group members are introduced during group discussion and these new arguments persuade the individuals to polarize their opinions. The choice of other group members is used as a cue for imagining the arguments behind their choice, in the case of no discussion. Shifts in choice occur either by listening to group discussion with argumentation explaining why people chose as they did, or by
imagining the arguments behind people's choices without group discussion. This dissertation draws several hypotheses based on the propositions of persuasive arguments theory and focuses on the effect of reasons in producing ingroup bias and in reversing this bias. This study will investigate several conditions in which intergroup bias does and does not occur.

Unlike the assumptions of social identity theory, ingroup bias may occur because of a reasoning or argumentation process, i.e., because of intrapersonal information processing. It has been found that shifts in choice occurred in the absence of group discussion when individuals knew and thought about others' choices. This research borrows persuasive arguments theory from research on group decision making and proposes the cognitive rather than the motivational basis for ingroup bias.

Intergroup research has significance in the area of social psychology. Intergroup behavior is one of core theoretical topics in social psychological studies. The study of ingroup bias has been one of the major topics in small group research. In everyday life people oftentimes face the problem of ingroup bias without any reasonable reasons for such bias and are puzzled or sometimes victimized by such bias. We may prevent ingroup bias
through knowledge and understanding of the mechanism behind the bias. Thus, the study of ingroup bias is not only of academic interest, but it also has practical implications. This dissertation tries to contribute new knowledge to the issue of ingroup bias. The significance of the study lies in the fact that it proposes new approach to the study of ingroup bias. If it is proved through the investigation that this new perspective is valid, it can open the new direction of research into the issue.

This introductory chapter has been devoted to explaining the basic area of research and the specific problem of this research. The next chapter will be devoted to the review of literatures about ingroup bias. Chapter Three will explain the theoretical background of the study and propose hypotheses based on it. Chapter Four will present the main test and methods the study has used, and chapter Five will be devoted to the presentation of major findings. In the last chapter, summary and implications of the study will be discussed.
CHAPTER II. LITERATURE REVIEW

There are a considerable number of studies investigating ingroup bias, especially since the 1960s. These studies focus on various aspects of ingroup bias, including the many factors affecting the amount of ingroup bias, and the various results of that bias. This chapter will review that research, and thus give an overview of what has been done in the study of intergroup bias. Although many studies have investigated this issue, there is a lack of consensus about the nature of the phenomenon and generalizations about the findings. Most of the research presented here is not directly related to the problem of this paper, but this review will give an overview of the research area.

Intra/intergroup Cooperation and Competition

In many studies, intergroup or intragroup cooperation and competition have been suggested as major factors influencing ingroup bias. In some of the earliest research on the topic, Deutsch (1949) already proposed that there is more favorable evaluation of the group and its products under conditions of within-group cooperation than under conditions of competition.
The pioneering study dealing with the influence of intergroup competition is Sherif et al.'s (1961). Sherif et al.'s field study demonstrated that interaction under competitive conditions was sufficient to produce ingroup bias and intergroup hostility. Sherif and his colleagues ran the study in three stages; the stage of ingroup formation, the stage of intergroup competition and conflict, and the stage of reduction of intergroup conflict. In the second stage, they hypothesized that in the course of competitive relations between the two groups, unfavorable stereotypes will come into use about the outgroup and its members, and these stereotypes will become standardized over time. They found evidence in favor of this hypothesis.

Blake and Mouton (1961) investigated the effect of intergroup competition under win-lose conditions, and found that while all groups rated themselves to be above average in problem solving before competition, such positive ratings of their own groups increased even further after intergroup competition. They used groups with 9 to 12 persons in a laboratory situation, in which subjects met several times. They interpreted the findings to be the result of strong pressures to evaluate one's own group more favorably due to solid identification with their own group's position. Another study by Blake and Mouton (1962) also focused on the evaluation of group products. Intergroup competition was
manipulated by leading subjects to expect that one group would be a winner and the other a loser on a problem solving task. The result showed that the product of one's own group was rated higher than that of the other groups.

Ferguson and Kelley (1964) tried to minimize the competition factor and measured preference for ingroup and its products using temporary, ad hoc groups. They found that competition increased the preference for ingroup product, although competition was not necessary for such preference.

Rabbie and Wilkens (1971) also investigated the effect of intergroup competition on ingroup bias. They compared three conditions: a condition in which subjects are expected to work together in competition with the other group; a condition in which subjects are expected to work together as a group but independently of the other group; and a condition in which they are expected not to work together as a group. The results showed that intergroup competition did not lead to greater ingroup solidarity, nor any overevaluation of ingroup's product, although there was weak evidence that intergroup competition led to a greater ingroup/outgroup differentiation than did noncompetitive relations.
Doise et al. (1972) divided individuals into two groups based on their preference for photographs, and made subjects allocate money to members of both their own and another group. Half of the subjects were told that they should gain as much money as possible for their own group (competitive group), and half were told that they should gain as much money as possible for both groups together and total money would be divided equally between the two groups (cooperative group). In a control condition, subjects rated each other's physical traits on various scales, without any manipulation. The result showed that the ingroup was always evaluated more favorably than the outgroup in both control and experimental conditions, but even more in the experimental conditions. However, there was no difference between the competition and cooperation conditions in evaluation of the ingroup, and discrimination against the outgroup was stronger when competitive interaction was anticipated.

Kahn and Ryen (1972) investigated the minimal necessary conditions for ingroup bias. They hypothesized that ingroup bias would occur as a result of classification only when subjects expect the groups to compete. Thus, they manipulated the anticipation of cooperation or competition between groups, and found that subjects anticipating cooperation showed less ingroup bias than those in competition. However, even those subjects in cooperation
condition also showed significant ingroup bias. Thus, they concluded that intergroup competition is not a necessary condition for the bias.

In another study, Ryen and Kahn (1975) tested the effects of five intergroup orientations on evaluations of the ingroup and the outgroup: those conditions were alone, coacting, cooperating, competing with the outgroup without feedback of outcome, and competing with win-lose feedback. Thus, they manipulated both intergroup orientation and feedback concerning the outcome of competition. They measured ingroup bias using seating choices and by semantic differential scales. The results showed that all conditions produced significant own group biases with the exception of the coacting condition. Subjects of the alone and coacting conditions chose random seating patterns. Subjects in cooperating groups sat near both ingroup and outgroup members, and displayed a slight bias favoring their own group. Subjects in the competing with no feedback condition sat near other ingroup members but far from outgroup members and rated their own group much higher than the other group. Winning feedback caused subjects to sit closer to the losing group, relative to no feedback conditions, while losing groups tended to sit as far from winning group as possible. Winning feedback caused even higher ingroup evaluations than the no feedback condition, while losing feedback produced
relatively low ingroup ratings. Thus, intergroup orientation affected ingroup bias: bias was least for coacting groups and greatest for groups competing with no feedback or competing with winning feedback. Ryen and Kahn concluded that a cooperative orientation is the most conducive to intergroup harmony, while a competition orientation produces not only greater evaluative bias but leads to seating patterns which make intergroup interaction hard. They interpreted these results as suggesting that an intergroup orientation provides expectations about future involvement with an outgroup and provides normative information as to how to place oneself with regard to own and outgroup members.

Rabbie et al. (1974) manipulated both intergroup orientation (cooperation versus competition) and bargaining position (weak versus strong), and made subjects play the role of union representatives. They found that competitive groups showed greater cohesiveness when they had a strong rather than weak position. However, cooperative groups felt more positive about their own group when they had a weak bargaining position. Competitive groups were more hostile and had more negative attitudes toward the other group than cooperative ones.
Rabbie and de Brey (1971) investigated the effects of group goal incompatibility by manipulating competitive and cooperative orientation. They hypothesized that the cooperative groups would have a more positive evaluation about the product of the other group than competitive groups, and would have a more flexible attitude toward negotiations. The hypothesis that expectation of intergroup competition will produce a greater ingroup attraction was not supported, and the hypothesis that there would be a stronger outgroup depreciation in the competitive condition than in the cooperative condition was only partially supported. Thus, they concluded that competitive orientation does not lead to greater ingroup bias nor greater ingroup cohesion.

Wilson and Miller (1961) hypothesized that intergroup competition would lead to an unfavorable perception of the outgroup and this perception would be an inevitable concomitant of ingroup cohesion. They found no evidence for this, however.

Kennedy and Stephan (1977) studied the effects of within-group cooperation and competition under conditions of success and failure on subject's evaluation of own and outgroup members. Unlike most studies on the effects of cooperation and competition between groups, this study
focused on how factors within groups affect relations between groups. The results showed that subjects in conditions of either cooperative-failure or competition-success displayed ingroup bias. That is, ingroup bias was greater after successful competition than after unsuccessful competition, and after cooperative failure than after cooperative success. Thus, there was a significant interaction effect between within group orientation and group outcome, while the main effect of within-group orientation was nonsignificant. The fact that there was no bias in the cooperative-success condition suggested that the norm of ingroup/outgroup bias is not automatically elicited by ingroup cohesiveness.

Brewer and Silver's study (1978) investigated the effects of different categorizations and of different reward structures. Subjects were categorized into two groups, arbitrarily or based on similarity in painting preferences. Also, they manipulated three reward structures. In the competitive condition each individual's total points were scored by summing the two ingroup member points and subtracting total points allocated to their counterparts in the outgroup. In the cooperative condition, the outcomes for members of the two groups were made positively interdependent by adding together points assigned to two ingroup members and two outgroup members. In the
independent condition no interdependence of the outcomes was established and the total points were set so that an individual could win if she were allocated the maximum possible points in each trial by her own group, regardless of outgroup's point allocation strategy. The purpose of the study was to clarify the nature of ingroup bias in reward allocation and to compare outcomes obtained from behavioral measures with those obtained from attitudinal measures. Thus, they used two kinds of measurements for ingroup bias, trait ratings and reward allocation matrices.

They found that the results from subjects in the independent and competitive reward structure conditions were the same in reward allocations, i.e., subjects in both conditions used the maximum difference strategy most often. There were no differences between the competitive and independent conditions. However, under the cooperative condition, subjects chose relative gain significantly less often and showed equal preference for joint gain and equality. Thus, there were significant differences in choice of reward allocation strategy as a function of reward structure. There was no interaction between categorization and reward structure, and the influence of reward structure conditions on the use of relative gain and equality strategies was unaffected by differentiation between groups.
based on either an arbitrary criterion or on similarity. There was a significant difference in the way subjects rated the ingroup and the outgroup. Their responses to various evaluation scales favored the ingroup. However, the difference was small and the size of bias was the same across all reward structure conditions. Based on such results, the researchers concluded that the mere presence of intergroup differentiation is sufficient to create conditions of social competition, and that while the cooperative interdependence succeeded in reducing allocation of rewards to ingroup members, it had no impact on ingroup bias in evaluative trait ratings. Reduction of competitive interdependence was not sufficient to eliminate ingroup bias.

There are several other studies focusing on the effects of intergroup cooperation and/or competition on ingroup bias. Worchel et al. (1977) found that simple cooperation between groups was not sufficient to increase attraction between groups who have previously competed, and that the effect of intergroup cooperation on attraction depended on both the outcome of cooperation and the nature of the past interaction between groups. Previous success would lead to increased attraction for the outgroup regardless of previous interaction but failure resulted in increased attraction only if previous interaction had been cooperative. Thus,
both previous interaction and success of combined efforts were important variables in determining when intergroup cooperation would increase intergroup attraction. Attraction for the ingroup, however, was not affected by either of these variables.

Bass and Dunteman (1963) concluded that when there was intergroup competition, people underevaluated the outgroup more than when there was not. Dunn and Goldman (1966) concluded that competition among groups might be unnecessary in producing positive ingroup feelings. Goldman et al. (1977) looked into the effects of intergroup competition or cooperation, intragroup competition or cooperation, and interdependence of means of task on group performance and evaluation of ingroup and outgroup. The results showed that evaluations of ingroup members were higher when there was intragroup cooperation rather than intragroup competition, and that it was not necessary to introduce intergroup competition for ingroup bias to occur. Evaluation of outgroup members were higher under intergroup cooperation than under intergroup competition, but not significantly higher.

Most studies focus on intergroup competition rather than intergroup cooperation as we can see. Worchel (1986) indicated that until recently, there has been relatively
little study of the means by which intergroup conflict can be reduced, and that the most utilized means of reducing bias is intergroup cooperation. He suggests that cooperation results in increased communication, greater trust, and attraction, more coordination of effort and division of labor. Also, cooperation may reduce bias through reducing the salience of intergroup distinctions. He proposes some conditions which determine whether cooperation reduces conflict: status differences, outcome of cooperation, number of cooperative encounters, personality, and task and situational characteristics.

As this chapter's examination of studies dealing with the effects of intra/intergroup competition and/or cooperation on ingroup bias shows, there exist somewhat contradictory results. Some studies (e.g., Goldman et al., 1977; Kennedy and Stephan, 1977) have focused on the effect of intragroup competition and/or cooperation. However, most studies investigate the effect of intergroup competition and/or cooperation rather than intragroup orientation.

One of the issues in this kind of study is whether competition is necessary for the occurrence of ingroup bias. There are some studies showing that intergroup competition is not a necessary condition for inducing ingroup bias (e.g., Kahn and Ryen, 1972; Rabbie and Wilkens, 1971; Ryen and Kahn, 1975; Rabbie and de Brey, 1971; Wilson and Miller,
1961; Brewer and Silver, 1978; Dunn and Goldman, 1966; Goldman et al., 1977). On the other hand, there is other research to show that intergroup competition is necessary for the bias (e.g., Sherif et al., 1961). However, in general, there is more evidence to support the claim that it is not a necessary precondition for obtaining ingroup bias.

Another unsolved issue would be whether intergroup competition increases the amount of ingroup bias. Some studies show that it enhances ingroup bias (e.g., Blake and Mouton, 1961; Kahn and Ryen, 1972), and others indicate that it does not increase the bias (e.g., Rabbie and Wilkens, 1971; Brewer and Silver, 1978). Thus, Brewer suggests that since there are inconsistent results concerning this issue, it may be that intergroup competition does not affect intergroup attitudes directly, but only when confounded with other aspects of group differentiation. In other words, the presence of competition may serve to clarify the distinction between the ingroup and the outgroup under conditions in which the differentiation would otherwise be ambiguous (Brewer, 1979:314).

Group Outcome

There are a number of studies to look into the importance of shared group outcomes as one factor influencing ingroup bias. Blake and Mouton (1961) and Bass
and Dunteman (1963) investigated intergroup competition under win-lose conditions, and found that the self-ratings of the winning groups were inflated, but those of the losing groups dropped temporarily. Wilson and Miller (1961) found that when subjects' own team won and the other team lost, there were large positive shifts in the ratings of their teammates but small positive shifts in the ratings of opponents. On the other hand, when subjects' own team lost and the other team won, the ratings of their teammates showed small positive shifts and those of opponents showed larger positive shifts. Therefore, there was a significant interaction effect between win-lose condition and object rated (own versus opponent). There was no effect in the direction of lower ratings by subjects who lost.

Worchel et al. (1975) manipulated three different independent variables: continue/discontinue, public/private, and win/lose/no information. In continuing groups, subjects were told that groups would compete on other problems. In the public condition, ratings of each group's product was announced to the groups. The win-lose condition was manipulated in a way that after competition, group members were informed that their product had either won or lost or that a decision about the winner had not yet been made. There was an interaction effect. In continuing groups,
members of winning groups showed less overevaluation of their own product when ratings were given in public than when ratings were given in private. However, the reverse effect was found in losing groups; continuing groups in the losing condition gave higher evaluations in public than in private condition. Subjects in continuing groups in the ambiguous outcome condition showed greater overevaluation in public than in the private condition.

The authors interpreted this as resulting from subjects' desire to avoid complacency in winning groups and to avoid despair in losing groups. That is, it is to the advantage of all winning group members to avoid a feeling of complacency, because a decline in effort can cause the group to lose in future competition. Thus, group members who have already won and anticipate further competition will guard against complacency by means of evaluating their own group's performance less highly. Subjects in discontinuing groups overevaluated ingroup product more in public than in the private condition, and this was found in both winning and losing groups. The authors interpreted this as showing subjects' desire to leave the group with a positive expression. Thus, Worchel et al. demonstrated group evaluation as a function of expectation of group longevity, outcome of competition, and publicity of evaluation.
Another study by Worchel et al. (1977) also deals with the effect of group outcome.

Ryen and Kahn (1975) compared competing with no feedback and competing with win-lose feedback conditions. They found that for groups competing with no feedback, subjects sat near other ingroup members but far from outgroup members and rated their own group much higher than the outgroup. Winning feedback caused subjects to sit closer to losing groups relative to the no feedback condition, while losing groups sat as far from the winning group as possible. Winning feedback caused higher ingroup evaluation than no feedback, while losing feedback produced relatively low ingroup evaluation. Thus, losing in competition decreased ingroup bias to a nonsignificant level below the no feedback-competition condition.

Rabbie and Horwitz (1969), using Dutch teenagers as subjects, manipulated three conditions. In a chance condition, subjects could win a radio by flipping a coin. In the experimenter condition, the experimenter decided who would get the radio. In the group condition, only one group voted to determine who would win the radio. In a control condition, there was no prize. The results showed that those in the control condition had no bias in ratings of ingroup and outgroup members. Thus, simple categorization
into two groups was not sufficient to produce the bias. However, flipping a coin produced a significant ingroup bias. That is, the chance of win-loss created intergroup bias by leading subjects to anticipate better outcomes from interpersonal encounters with ingroup members than outgroup members. There was significant difference in both group attributes and individual attributes between ingroup and outgroup evaluations in experimental conditions, but not in the control condition. The difference between control and experimental conditions was mainly due to the chance condition; rewarded subjects in the chance condition showed the highest ingroup ratings. Those in the experimenter condition and the group condition showed less bias because subjects might perceive experimenter discrimination or ingroup unfairness in those two conditions. The researchers believed that it was unlikely that subjects' ingroup preferences stemmed from their satisfaction or dissatisfaction with the changed state of each group. The self-ratings by winning groups were not higher than those by losing groups, and outgroup ratings by losing groups were not lower than those by winning groups.

Kahn and Ryen (1972) investigated the effects of ingroup and outgroup success on bias. Based on exchange theory, they assumed that a group which is successful in
competition has managed to reward its members, and members thus will show increased attraction to the group. The study demonstrated that under intergroup competition ingroup success produced greater liking for the ingroup than does ingroup failure; members of successful groups showed less attraction than unsuccessful groups to the other group, and ingroup bias increased positively with the increasing levels of group success. Under noncompetitive conditions, overall ingroup bias was greater only when the ingroup succeeded while the other group failed.

Kennedy and Stephan (1977) studied the effects of within group cooperation and competition under conditions of success and failure on subjects' point allocation to ingroup and outgroup members. They found that ingroup bias was greater after successful competition than after unsuccessful competition, and that subjects in a cooperation-failure condition displayed greater bias than those in cooperation-success condition. There was no bias in the cooperation-success condition. Thus, there was a significant interaction effect between the cooperation-competition conditions and the failure-success conditions.

In general, the research shows that people display more ingroup bias when their group wins against the other groups than when they lose. Although some studies (e.g. Rabbie and Horwitz, 1969) demonstrated that win-lose outcome might be a
necessary condition for ingroup bias, most studies on this issue treat group outcome as a factor that enhances or decreases the magnitude of ingroup bias rather than a necessary factor for ingroup bias to occur. As we can see in several studies, the outcome variable oftentimes interacts with other factors, and thus the effect of group outcome seems to differ depending upon other influences.

Other Factors

There has been a controversy over whether the salience or distinctiveness of a group is a necessary precondition for inducing ingroup bias. As an example of the studies dealing with this issue, Gerard and Hoyt (1974) hypothesized that the relative favorableness of ingroup evaluation would increase directly with the distinctiveness of ingroup membership. In their study, subjects wrote an essay and evaluated the essays written by two other ingroup and outgroup members. The distinctiveness of group membership was manipulated by size of the group; the smaller the ingroup, the more distinctive it would be. Thus, they compared groups with 2, 5, and 8 members, and found that ingroup bias was displayed only in 2 person groups. With 5 or 8 ingroup members, subjects tended to favor outgroup members over ingroup ones. Also, such bias was not on subjects' evaluation of qualities of the essays but of the
writers. The authors argue that the ingroup was favored so long as it was in a minority position, but once it achieved the status of numerical equality or superiority, ingroup members felt the security that facilitates generosity toward outgroups. Despite Gerard and Hoyt's findings, however, there is a lack of evidence to support salience as a determinant of ingroup bias.

As another prerequisite for ingroup bias, Dion (1973) suggests cohesiveness within a group. In his experiment, Dion found that members of highly cohesive groups were more cooperative toward the ingroup than toward an outgroup, and evaluated co-members more positively than outgroup members. In contrast, low cohesive groups failed to exhibit a tendency toward ingroup favoritism. These results were interpreted in terms of a cognitive differentiation hypothesis, suggesting that cohesiveness leads group members to cognitively differentiate the ingroup from the outgroup, i.e., it induces a strong sense of unit formation among members of a group. Thus, Dion contended that differentiation is necessary and sufficient for eliciting ingroup bias.

Dion (1979b) further analyzed the relationship between intergroup conflict and intragroup cohesiveness. He contends based on research findings such as those by Sherif et al. (1961), Blake and Mouton (1961), and Kahn and Ryen
(1972), that intergroup competition promotes intragroup cohesiveness, and he introduces a number of theories to explain such a relationship. Branthwaite et al. (1979) investigated group cohesiveness and found that greater cohesiveness led to less fairness and greater discrimination. However, there is no broad evidence to support the claim that group cohesiveness leads to ingroup bias.

Wilder (1978) was interested in individuation of the outgroup as a factor to reduce the bias. He suggested that the reason for ingroup bias is that an individual does not know much about the person toward whom he/she has the bias, i.e., the less one knows about a person, the more likely one will behave unfavorably toward him/her. Therefore, the more deindividuated others are, the more likely one will behave in a negative manner. Outgroup members are oftentimes perceived in terms of stereotypes and are more deindividuated due to a lack of contact and knowledge. Thus, he hypothesized that subjects in the dissent condition (where one of outgroup members dissented) would view the outgroup members as a collection of individuals and would display the least amount of ingroup bias. Subjects were divided into two groups, allegedly on the basis of their painting preferences. Actually, group assignment was
random. The groups were separated into a jury group and a public group. The jury group would be provided descriptions of two civil suits and render a decision for each case. The public group assumed the role of the public and were asked to evaluate the jury's recommendation. Actually, each group was informed that it was the public group and the other was the jury group. In the unanimous condition, public groups were given the unanimous recommendation of each member of jury group. In the dissent condition, one of jury group members dissented from the other members. In the alone condition, feedback from the jury group came from only one member.

The results showed that there were differences between the alone and dissent conditions, and between the unanimous and dissent conditions in subjects' reactions to jury group. Wilder interpreted this to indicate that it was not the specific behavior of dissenter but his/her relationship to the group that was the individuating factor. Few subjects in the dissent condition regarded the outgroup as a group, while most subjects in the unanimous and alone conditions regarded the outgroup as a single unit. When subjects were asked to divide money between ingroup and outgroup members, they awarded more money to ingroup members in the unanimous and alone conditions than in the dissent condition, and
there were no differences between the alone and unanimous conditions. Subjects divided money equally between ingroup and outgroup members in the dissent condition. Thus, an individuation of a dissenting outgroup member was sufficient to reduce ingroup bias directed at all outgroup members.

In another experiment, Wilder tried to find out whether individuation or dissent, per se, facilitated reduction of the bias. Subjects were divided into two groups, performed a group task, and received negative evaluation on group performance from the outgroup. Later, they requested assistance from the outgroup on a different task. In the cooperative condition, the outgroup complied with the request, but it refused in the uncooperative condition. There were two other conditions: a partially cooperative group condition in which half of the outgroup members complied as a single unit to the request for help, and a partially cooperative individual condition in which half of the outgroup members complied as individuals to the request. He hypothesized that subjects would show the most ingroup favoritism when the outgroup refused to cooperate and the least when the outgroup cooperated. Furthermore, subjects in the partially cooperative-individual condition would discriminate less than either those in the partially cooperative-group condition or the uncooperative condition.
This is because if bias is due to the deindividuation of the outgroup, one would expect a reduction in bias only when dissenting members are perceived as individuals and not when they are perceived as a subgroup within the outgroup.

He found that most subjects in the cooperative, uncooperative, and partially cooperative-group conditions perceived the outgroup as a unit, and those in partially cooperative-individual condition perceived the outgroup as an aggregate of individuals. There was no difference between the cooperative and partially cooperative-individual conditions in dividing a prize between ingroup and outgroup members. Subjects in the cooperative condition showed less ingroup bias than those in the partially cooperative-group and uncooperative conditions. Subjects in the partially cooperative-individual condition showed less ingroup bias than those in the uncooperative and partially cooperative-group conditions. Overall, subjects in all conditions showed preference for the ingroup. Thus, individuation of the outgroup decreased ingroup bias.

In his third experiment, Wilder claimed that the individuation effect cannot be attributed to the perception of the outgroup to be more tolerant of dissent and thus more attractive. He proposed this reason for the effect of individuation on reducing bias: individuation will blur the
simple ingroup/outgroup categorization and thus may lessen the tendency to behave differentially toward the groups. He indicated that his study neither shows individuation is necessary or sufficient to eliminate intergroup bias; rather, it suggests that individuation of the outgroup is a factor lessening the bias.

Wilder and Thompson's study (1980) focused on the effects of both intragroup and intergroup contact on reducing intergroup bias. They hypothesized that repeated contact with an outgroup under favorable conditions would be more effective in decreasing intergroup bias than a single contact would, and that independent of outgroup contact, increasing ingroup contact would accentuate intergroup bias. They found support for their hypotheses. However, their hypothesis that the beneficial effects of contact with a subset of an outgroup would generalize to the larger category from which the experimental outgroup was drawn was not supported. They proposed several reasons why the increasing number of outgroup contacts reduces bias: it could be due to a desensitizing effect to the outgroup, to disconfirming expectations about the outgroup through favorable contact, to the increasing familiarity of outgroup, to discovering more similarities between ingroup and outgroup members, or to more confidence in predicting
future actions of outgroup members. According to the results, evaluations of ingroup were largely unaffected by changes in the amount of ingroup contact, but evaluation of the outgroup decreased with greater ingroup contact, thus accentuating differences between the groups. Overall, changes in ingroup and outgroup contact affected evaluations of outgroup more than those of the ingroup. Evaluations of the outgroup improved when outgroup contact was increased or when ingroup contact was limited. Moreover, greater ingroup contact increased the perception of the outgroup as a unit. Thus, contact with the ingroup appeared to affect the absolute evaluation of the outgroup as well as the relative evaluation of the outgroup compared to the ingroup.

Amir (1969) reviewed research about the effects of intergroup contact on ethnic relations and concluded that intergroup contact under favorable conditions tends to reduce prejudice in ethnic relations, but contact under unfavorable conditions could increase intergroup bias. For instance, relative status of group members within the contact situation may be an important factor; contact between groups with equal status will reduce the bias, but contact will not otherwise have this effect.

There are not many studies investigating intragroup and intergroup contact. Wilder (1986) has reviewed the effects
of intergroup contact. He concludes that favorable contact with a member of the outgroup will generalize to a more positive evaluation of the outgroup as a whole. The favorable contact provides an opportunity to learn about the outgroup. Successful contact is dependent on a perception of a positive relationship between the person in the ingroup and person in the outgroup. Positive ingroup/outgroup member interaction will have maximum impact when there is little opportunity for biases in attention and attribution, when the person in the outgroup behaves consistently positively and is supported by other outgroup members, and when an outgroup member behaves in a manner that individuates him/herself. Also, positive interaction with an outgroup member will have a favorable impact on the evaluation of outgroup as a whole when that person is highly typical of the outgroup, but negative interaction with an outgroup member will have an unfavorable impact on ingroup members' evaluation of the outgroup regardless of that outgroup member's typicalness. In conclusion, the success of contact is contingent on the favorability of the interaction with the outgroup members and the perceived relationship between the outgroup members (contact persons) and the outgroup itself. Regardless of how favorable the contact is, the important thing is the ingroup members'
perception of the interaction. Wilder points out that we cannot assume that the success of contact will occur easily because many other factors influence the outcome of intergroup contact. Thus, there remains potential for further studies on the unsolved issues.

Worchel et al. (1975) investigated the effects of group longevity, outcome of competition, and publicity of evaluation. They found some significant interaction effects among these three factors in such a way that subjects expecting to continue their relationship with the other group and who were told that they had won, overevaluated their own group product less when ratings were made publicly than when privately. On the other hand, continuing groups in losing conditions gave higher evaluations for their own product in public than in the private condition. Subjects in continuing groups with ambiguous outcomes showed greater overevaluation in public than in private condition. In discontinuing groups, public evaluation resulted in higher evaluations of a group's own product than private evaluation for both winning and losing groups. The interaction effect between publicity and outcome was significant within continuing group conditions but not within discontinuing conditions. Thus, the authors concluded that overevaluation of one's own product might vary in rather complex ways.
Tajfel and Billig (1974) focused on a rather different factor: subject's uncertainty and insecurity in a situation. They tested the hypothesis that subjects' uncertainty and insecurity in a novel situation, at least in part, would be responsible for ingroup bias because these subjects should try to lessen their insecurity by identifying more strongly with the ingroup. However, contrary to their hypothesis, groups who were familiar with a situation (and hence less uncertain and insecure) showed more outgroup discrimination than unfamiliar groups, although both groups displayed significant ingroup favoritism. Also, subjects who were familiar with the situation showed more fairness and more consistency in their responses to a money distribution task. Tajfel and Billig argue that such result implies that greater familiarity with a novel situational context can induce an even stronger adherence to the social norms which prevail in a more usual situation. The results make sense because both responses of favoring the ingroup and of equality of reward are normative in the world of English schoolboys who were the subjects.

Rabbie and Huygen (1974) examined the effects of disagreement and of social interaction within a group on attitudes toward the ingroup and the outgroup. Homogeneous groups consisted of subjects who had the same opinion on an
issue, and heterogeneous groups consisted of those who had opposite opinions. The authors wanted to examine to what extent internal disagreement would lead to a lessening of ingroup cohesiveness and an increase in outgroup hostility. They reasoned that internal disagreement may be redirected to the outside enemy and lead to attribution of negative characteristics to the outgroup. The results showed that heterogeneous groups had higher outgroup ratings than homogeneous groups although there were no differences in ingroup ratings. Thus, the hypothesis that differences of opinion in heterogeneous groups would lead to a more negative evaluation of the outgroup was not supported. In general, after the group's discussion, ingroup/outgroup differentiation was stronger in homogeneous than in heterogeneous groups, and this difference in differentiation was due to higher outgroup ratings of heterogeneous groups. Likewise, similarity in attitudes affected outgroup ratings more than ingroup ratings. As expected, homogeneous groups showed a greater tendency than heterogeneous groups to prefer ingroup's product over that of the outgroup. In general, heterogeneous groups were more positive about the outgroup and more negative about the ingroup product than were homogeneous ones. In addition, the authors found that increases in social interaction through group discussion led to greater liking for ingroup. Thus, they conclude that
intragroup attraction is a strong determinant of ingroup attraction.

As this chapter's examination shows, there are many factors which have been suggested as affecting the amount of ingroup bias or as a necessary condition for bias. However, there are no conclusive findings and thus it is difficult to generalize the results of this research. Oftentimes some factor interacts with other variables. Thus, Turner (1980) recognizes that ingroup/outgroup behavior is extremely variable and sensitive in complex ways to a multitude of factors. He argues that the future research about this behavior should contribute to systematizing our understanding of the conditions under which intergroup bias varies in terms of some causal theory. Therefore, more research needs to be done to specify different factors.

Other Findings

Several studies investigated the effect of cross categorization based on multiple memberships on ingroup bias. Deschamps and Doise's study (1978) is a representative one. They hypothesized that when subjects are asked to describe people from outgroups, they would establish a greater differentiation between these people and themselves than when they are asked to describe groups which
are different from their own on one criterion but identical to their own on another criterion, i.e., crossing of categories would lead to a weakening of categorical differentiation. Thus, they used two different criteria in each experiment, sex and age, and sex and color (hue), and cross categorized subjects based on these. Their hypothesis was supported: in the second experiment, for example, when natural and strong categorization by sex was crossed with one by hue which was artificial and weak, the effect of the latter was to decrease discriminatory effects of the former. Likewise, they tried to limit the functioning of categorical differentiation in the case of crossed categories and to show that introducing common memberships reduce intergroup bias.

Commins and Lockwood (1978) also were interested in cross categorization. They hypothesized that when compared with single religion groups, discrimination against outgroup and favoritism to ingroup would be reduced in criss-cross (mixed religion) group. They used students from two different religious schools and found evidence for the hypothesis.

Brown and Turner (1979) criticized Deschamps and Doise's study (1978) pointing out that the latter did not employ categorizations with equivalent psychological significance (e.g., color versus sex) and that the use of
real life groups confounded social categorization, per se, with the prevailing norms and attitudes associated with that intergroup relation. Brown and Turner compared two hypotheses. According to an additive hypothesis, there must be intergroup discrimination in both simple and crossed categorization conditions. In the latter condition, the level of bias will vary according to the two quadrants being compared, being most marked between in-in and out-out group members. Bias may be attenuated in the complex rating situation where members of all four quadrants are evaluated, due to decreased salience of the categorizations. On the other hand, according to cognitive hypothesis, there should be intergroup discrimination in the simple but not crossed categorization conditions, irrespective of whether the latter involves simple or complex rating tasks.

They used school children aged 12-13 years, and manipulated five categorization conditions, one simple and four crossed categorization. In the simple categorization condition, subjects rated ingroup and outgroup members. In crossed categorization conditions, half the ingroup members determined by one division were outgroup members by the second division. In these conditions, subjects' ratings of members of both ingroups were compared with those of members of one ingroup and one outgroup. Also, subjects' ratings of
members of both ingroups were compared with those of members of both outgroups. Subjects also rated all ingroup and outgroup members. The results displayed that ingroup members were rated more favorably than outgroup members, and that ingroup bias was found with crossed but not simple categorization. Also, ingroup bias was greatest when members of both ingroups were compared to those of both outgroups. Thus, the results supported an additive hypothesis. The authors suggested that the reason why there was no bias in the simple categorization condition was because subjects could see the members of groups and thus make judgments on the basis of features of individuals rather than by memberships. They conclude that criss-crossing, per se, does not reduce the salience of intergroup divisions and discrimination is maintained.

From a somewhat different perspective, Arcuri (1982) manipulated three types of classifications, simple, superimposed, and crossed, and investigated the effects of these conditions on attribution memory, i.e., on discriminative accuracy in memory. The findings from these kind of studies show in general that cross categorization may tend to reduce ingroup bias.

The study by Howard and Rothbart (1980) of the effects of social categorization on memory for behaviors focuses on a different issue. They were interested in the fact that
when subjects have prior expectancies about a group, memory processes serve to confirm already existing beliefs. The experiments showed that social categorization generated the implicit expectancy that the ingroup would engage in more favorable and/or less unfavorable behaviors than would the outgroup, and that subjects showed significantly better memory for negative outgroup than for negative ingroup behaviors. In this research, Howard and Rothbart intended to clarify some of cognitive consequences of social categorization by examining subjects' expectancies of and memory for ingroup/outgroup members' behaviors.

Moreland's study (1985) focused on the effects of social categorization on intragroup rather than on intergroup relations, and showed interesting findings. He was interested in the effects of social categorization on the assimilation of new group members. Assimilation means attempts by a group to change a newcomer's thoughts and behavior in ways that will make that person more similar to full group members. Using five member groups, two subjects were told that they were newcomers, and the other three had no information and believed that everyone was new. The researchers found that there was strong ingroup/outgroup bias on the part of the newcomers between new and old group members, and biases were strongest during the first meeting
and weakened over time as the distinction between new and old members became less salient. They suggested that the newcomers were biased because they were confused, unfamiliar with the group, and uneasy about acceptance by oldtimers, and under such condition social categorization could be useful to them because it serves to guide behavior. The effects of social categorization on subjects began with their expectations about the group and its members; compared with control subjects, newcomers were less enthusiastic about group membership, more pessimistic about fellow members, and more likely to believe that seniority would determine intragroup relations. Although subjects had not yet met, they already had clear expectation about what the group would be like. Newcomers tended to interact more frequently and positively with one another than they did with oldtimers, and most of their biases involved ingroup acceptance rather than outgroup rejection. Although by the third week they were fully assimilated into the group, assimilation took a long time.

Although we talk about ingroup bias in a general sense, there may be various dimensions of the bias. Ingroup bias may have different aspects. The bias associated with any particular basis for categorization may not be constant across all response dimensions, i.e., there may be selective bias.
Wilson et al. (1965) and Wilson and Kayatani (1968) looked into the problem of selective bias. They suggested that ingroup bias may be different depending upon different dimensions of the bias. In Wilson and Kayatani's (1968) study, for instance, they found that attitudinal biases favoring the ingroup were stronger in case of game-relevant motive traits such as cooperativeness, hostility, and fairness than for other traits which were not directly related to the game performance such as likability, capability, or anxiety. In other words, there was a significant interaction between types of traits and ingroup bias. The bias was very strong on motive traits, but only moderate on sociometric and ability traits, and did not exist at all on personality traits. Brewer and Silver (1978) also found the most bias on ratings of trustworthiness, friendliness, and cooperativeness but no significant bias on other traits.

Dustin and Davis (1970) observed the effects of competition when the competition took place on an individual basis versus on a group basis. The results showed that following group competition, there was significant bias in product ratings in favor of the ingroup, but no bias from subjects who were competing on an individual basis. Overevaluation of the product of one's own group was greater
on all three dimensions, i.e., overall value, creativity, and originality, for competing groups than for competing individuals. Thus, the authors conclude that evaluative bias is at least partly due to group factors, i.e., the group context is crucial for the bias to occur.

Ingroup bias may differ depending upon the status of groups. Turner and Brown (1978) argue that subordinate groups will seek positive distinctiveness from dominant groups to the degree that their inferiority is not perceived as inherent, immutable, or fully legitimate. High status groups can also have an insecure social identity and they must maintain and justify own status. Turner and Brown indicate two conditions under which high status groups will perceive a need to assert their own positive distinctiveness to maintain positive social identity: when they may be threatened by a low status group, or when they may perceive a conflict between their own system of values on the one hand, and the bases of their dominance over outgroups on the other hand.

The researchers manipulated three independent variables: status (high/low), legitimacy of status relations, and stability of status relations. The status variable was manipulated by a difference in group performance. The results demonstrated that high status
groups displayed more ingroup bias than low status groups, although groups of both status displayed bias toward high status groups. They also found that groups with illegitimate status relations showed more ingroup bias than those with legitimate relations, for both high and low status groups. Also, there was partial evidence for the hypothesis that groups with an unstable status would show more ingroup bias than those with stable relations, but this was only found for legitimately superior and illegitimately inferior groups. Insecure social identity resulted in attempts to achieve a positive self-concept through group creativity. The authors conclude that insecure social identity is sufficient condition for enhancing the search for group distinctiveness.

In a similar context, Moscovici and Paicheler (1978) found an exception to ingroup bias, i.e., they found that the minority would show a tendency to favor the dominant outgroup. They found that a group which has an insecure image of itself (minority group) did not find it easy to adopt clear discriminatory strategies when confronted with a superior (majority) group, and thus this group showed a slight tendency towards bias in favor of the outgroup. Also, when superiority was confirmed (majority with positive self-image), the feeling of security was sufficiently strong.
to enable them to display equitable behavior. On the other hand, the fragility of a group's status leads to increased group distinctiveness, and this effect of fragility was shown both in minority groups with positive self-image and majority groups with negative self-image. In case of the latter, the group defended its status and in the former case, the group claimed it status through distinctiveness. They claim that if social recognition is acquired, there is no reason for displaying distinctiveness and thus the majority with positive self-image shows equitable behavior.

Branthwaite et al. (1979) also proved that the status of a group has an influence on the strength of discrimination. They used both arbitrary experimental groups and natural groups. They found that groups with inferior status showed greater discrimination and less fairness. They interpreted this to mean that an underdog attempts to assert a positive identity by discriminating against the topperdog in order to compensate for the self-perceived lack of status.

Ng (1982) discusses some of the possible effects of intergroup power relations on discrimination. He argues that a bilateral, equal power relationship is inherent in the traditional social categorization experiments. The traditional procedure results in a bilateral and equal power relationship since the members of both groups are given the
same power to distribute the property. Ng argues, however, that it is true that the social context in which groups discriminate against one another partly consists of the power relation between the ingroups and thus the power element is inherent in the social categorization paradigm. He intended to make the implicit power element more explicit by investigating two kinds of power relations; unilateral direct power relation in which only members of one group are in the position to distribute the property, and unilateral indirect power relation in which the distributions proposed by the members of one group is judged by a committee which consists of members of both groups. He found that discrimination in the distribution of a property for power was greater when the unilateral power relation is secure than insecure, i.e., when the decisions made by the members of the empowered group were binding on the other, subordinate group rather than when the decisions were not binding. He concludes that outgroup discrimination is not a necessary outcome of social categorization, but is contingent upon an equal intergroup power relation, and in the presence of such a power relation, the magnitude of discrimination increases when the power advantage becomes decisive.
Most studies using a matrix such as the one developed by Tajfel et al. (1971) or Brewer and Silver (1978) to measure ingroup bias make subjects allocate points or money to both ingroup and outgroup members and test for differences in the amount of rewards allocated. However, Hewstone et al. (1981) tried to replicate the result using monetary penalties rather than rewards, and found somewhat different results: there was less evidence of ingroup favoritism when using penalties and, instead, fairness was an important strategy. Thus, they concluded that people apparently have different ideas about the distribution of rewards and penalties, and feel that fairness is better in case of penalties.

The phenomenon of ingroup bias may differ according to different cultures. Vaughan (1978) and Wetherell (1982) report cross-cultural studies. Wetherell (1982), for instance, compared European children and Polynesian children living in New Zealand. Groups were established by picture preferences and allocation of money and matrices were used as measure for bias. She found that both Polynesian and European children showed ingroup favoritism but Polynesians were less discriminatory. In the second experiment, she compared European, Samoan, and Maori children, and found that Samoans were the least discriminatory but Maorians used
ingroup favoritism strategy as much as Europeans. Thus, she concluded that there are cultural differences and that Polynesian show greater generosity to the outgroup which is probably due to their non-Western value system.

Some studies look at sex differences in ingroup bias. Gerard and Hoyt (1974) found no statistically significant difference between male and female students although female subjects showed less ingroup bias than males. Turner et al. (1979) also report the same results. Dion (1979a), however, found significant ingroup bias among male subjects but no bias among females, and interpreted this as a result of males' greater task orientation. However, the findings about the effects of gender are not consistent, and it seems reasonable to conclude that sex does not make any difference.
CHAPTER III. THEORETICAL FRAMEWORK AND HYPOTHESES

Theories of Ingroup Bias

There have been quite a number of theories or hypotheses to explain the ingroup bias phenomenon, to explicate why such bias occurs. Unfortunately, however, social psychology lacks a major dominant theory so far in this area. Some explanations do not reach a theoretical level. For instance, Hinkle and Schopler (1979) presented eight major hypotheses for group performance evaluation bias and indicated that there is a lack of major theory about group evaluation bias.

Thus, the main purpose of this dissertation is to propose a new theory which can explain ingroup bias better. This new theory derives from the study of group polarization or choice shifts. There are two dominant theories on choice shifts: interpersonal comparison theory and persuasive arguments theory. Interpersonal comparison theory is based on social comparison theory of Festinger, and thus it shares assumptions with social identity theory which is the dominant theory in ingroup bias study. In this chapter, it is contended that since persuasive arguments theory has been the strongest rival theory against interpersonal comparison theory, a new perspective derived from persuasive arguments
theory can be an alternative explanation to social identity theory for the explanation of ingroup bias phenomenon. First of all, in the following section, several existing explanations for ingroup bias will be discussed along with some of their problems or weaknesses.

**Balance theory**

Some research on ingroup bias has applied Heider's balance theory for explaining the phenomenon. According to the theory, group members who work together form a positive unit relationship. According to Heider, if group members perceive themselves as being connected to a group (positive unit relation), they should come to like their own group. Likewise, if group members perceive that they are excluded from membership in another group (negative unit relation), they should come to dislike the other group. Thus, ingroup bias should be a rather immediate consequence of membership in one group and exclusion from membership in another group. Any factor that increases either the strength of the positive unit relation towards own group or the attraction towards own group, and any factor which serves to increase either the strength of the negative unit relation towards the other group or the disliking of the other group, should increase ingroup bias. Likewise, any factor decreasing the strength of the unit and attraction relations existing after
classification should result in decreased ingroup bias (Kahn and Ryen, 1972:34). Thus, according to Heider, all that is necessary to produce ingroup bias is the perception by group members that they are members of one group and not members of another group.

Ferguson and Kelley (1964) explain four possible hypotheses for overevaluation of the product of own group: participation hypothesis, propaganda hypothesis, self-enhancement hypothesis, and balance theory. They found evidence supporting balance theory. According to the theory, the high evaluation of one's own group's product reflects the high evaluation of the group itself. The two relationships that 'I like the group' and 'the group is responsible for this product' require the third relationship 'I like the product' if balance is to prevail (Ferguson and Kelley, 1964:224). They compared ratings of products by both participants and nonparticipants. They argue that the finding that the nonparticipant members also showed as much bias in favor of their own group's products as do the participants suggests that the crucial factor is sheer loyalty or cathexis for the group and not cognitive context acquired through taking part in the production process. They found evidence that the evaluations represent the subjects' true evaluations of the products rather than
distorted reports. If the evaluations are reflecting genuine preferences, then that fact can eliminate differential cognitive context as the factor mediating the preference. Because the nonparticipants have no richer cognitive contexts for evaluating their group's product than do members of the other group, their preference must stem from their relationship to the group. Thus, they conclude that emotional identification or attraction to the group is the factor basic to preference for own group product.

Kahn and Ryen's (1972) study also uses balance theory. They found that a significant ingroup bias was revealed as a result of classification only. Ingroup bias was an immediate consequence of group membership, thus supporting balance theory. They argue that since subjects had no knowledge of even who the other members of their group were, it appears that perception of being classified in a group is sufficient to produce ingroup bias, and this gives strong support to balance theory.

As such, there are some early studies arguing for balance theory as an appropriate explanation for ingroup bias. However, none of these studies seems to be able to prove the theory. The mere finding that classification into groups was sufficient to produce ingroup bias does not lead to the conclusion that the need for a balanced relationship
which people are involved in is the cause of ingroup bias. Turner (1975) indicates that balance theory is ruled out through Rabbie and Horwitz's (1969) study. Their experiment comprised four conditions—in each of which subjects were classified into two groups. In the control condition (group classification per se) the groups were neither rewarded nor deprived. In the three experimental conditions (common fate) the groups were either rewarded or deprived by chance alone, by the arbitrary choice of the experimenter or by the choice of one of the groups. According to the results, the control condition showed no discriminatory evaluations, but the combined ratings of the experimental conditions showed a significant ingroup bias, mainly due to the choice condition, i.e., where winning or losing was most fair. Turner argues that balance theory is ruled out since contrasting experience with outgroup members in the experimental conditions did not generate more negative ratings of the outgroups in these conditions than in the control condition. Ingroup bias was a matter solely of more positive ingroup evaluation; there was no outgroup depreciation at all.

Similarity-attraction hypothesis

In the 1960s, Rokeach proposed belief similarity hypothesis as an explanation for prejudice among groups.
According to the hypothesis, prejudice or discrimination is largely due to perceived belief dissimilarity among groups rather than to differences in group membership. The belief similarity hypothesis contends that persons assume that ingroup members possess similar beliefs to their own and outgroup members have dissimilar beliefs. Such differences in presumed belief similarity between ingroup and outgroup members, rather than the social norm of ingroup favoritism, may have mediated the discriminatory behavior. Thus, the hypothesis predicts that subjects will attribute greater belief similarity to ingroup members than to outgroup members, and that the beliefs of ingroup and outgroup members will be a more potent determinant of intergroup bias than mere categorization (Allen and Wilder, 1975).

Some related research on this issue has been done in the 1960s (e.g., Byrne and Nelson, 1964, 1965; Byrne, London, and Griffitt, 1968; Clore and Baldridge, 1968). For example, Byrne and Nelson (1964, 1965) found that the proportion of similar attitudes of strangers had a highly significant positive effect on attraction toward them. Byrne, Clore, and Smeaton (1986) argue that attitude similarity is a potent factor affecting attraction.

Allen and Wilder (1975) tested whether belief similarity is a more important determinant of discriminatory
behavior than group categorization. According to the result, mere categorization based on art preference was sufficient to produce intergroup discrimination, and ingroup favoritism was further enhanced when the ingroup held similar beliefs to those of subjects, but similarity or dissimilarity of outgroup members did not differentially affect discriminatory behavior as measured by distributing rewards between ingroup and outgroup. More discrimination occurred when the ingroup would benefit than when outgroup would, regardless of the belief similarity manipulation. In conclusion, ingroup belief similarity significantly affected ingroup favoritism and accentuated the use of maximum difference strategy when distributing rewards. Allen and Wilder point out that although the ineffectiveness of their outgroup belief similarity manipulation suggests that the belief similarity hypothesis is not a sufficient explanation, such conclusion is premature because the result can differ depending on different experimental procedures. However, their research shows that once categorized into groups, subjects display significant ingroup favoritism regardless of belief similarity of ingroup and outgroup members, and that belief similarity of outgroup has little effect while that of the ingroup increases ingroup bias.
Allen and Wilder (1979) extended the hypothesis further by asking whether it can be applied to situations involving temporary groups formed on an arbitrary basis, and whether subjects who assume differential belief similarity for ingroup and outgroup members confine their assumptions to beliefs which are relevant to the basis of categorization. They found that subjects tend to attribute more similarity of beliefs among ingroup and outgroup members on general items than on task-relevant items. Subjects who made attributions about the beliefs of ingroup members assumed these members had beliefs more similar to their own than did subjects who made attributions about the beliefs of an outgroup member. That is, subjects attributed more dissimilar beliefs to outgroup members than ingroup members, and such attribution appeared to be somewhat stronger for task-relevant than more general belief items. Subjects assumed a greater variance in beliefs exists between ingroup and outgroup on issues relevant to the basis of group formation than on general issues. The researchers argue that the belief similarity hypothesis is applicable to groups created on the basis of a rather arbitrary criterion and whose members have no contact with one another. They argue that the implication of the study is that the ingroup bias phenomenon may be reinterpreted from a belief similarity perspective.
Wilder's (1984) two experiments investigated assumptions of ingroup similarity and outgroup dissimilarity. It was hypothesized that subjects would predict greater homogeneity among outgroup members than among ingroup members, greater similarity between themselves and ingroup members than outgroup members, and greater similarity among ingroup members in the presence of an outgroup. Also, such homogeneity and similarity effects were predicted to be strongest on items relevant to the categorization criterion and to be accentuated over time. The results displayed that subjects biased their predictions about the beliefs of other ingroup or outgroup members. Subjects tended to reduce differences between their opinions and ingroup members' opinions, and to increase differences between their opinions and outgroup members' opinions. Also, subjects expected ingroup members to be more similar to themselves when an outgroup was present than when no explicit outgroup existed, and this bias was strongest for items relevant to the categorization criterion. Thus, the categorization of persons into a group was sufficient to foster assumptions of belief similarity on items relevant to the categorization.

Herringer and Garza's (1987) recent research intended to test directly the perceptual effects of categorization in
a minimal group context. They found that perceptual accentuation occurred, biasing a subject's later perceptions of the paintings used to categorize the subjects. Perceptual accentuation, which means increase in differences of painting preference between own versus the other choice due to increased distinctiveness of paintings was greater when the two groups were categorized based on art preference than for either not categorized groups or randomly categorized groups. It is generally supported that ingroups are assumed to be more similar to oneself than outgroups.

The belief similarity hypothesis has been extended and used to study whether not only similar beliefs or attitudes but also similarity in general attributes may lead to ingroup bias. Hewstone et al. (1981) found a significant similarity effect, but not a categorization effect, using monetary penalties. Social categorization was based on arbitrary classification into groups, and similarity was based on trivial similarity of aesthetic preferences. By manipulating these two independent variables, ingroup favoritism was found only in the noncategorization-similarity condition. Thus, the critical role of social categorization reported in Billig and Tajfel's (1973) study were not replicated.
Dion's (1973) study also supports the hypothesis. Although he intended to manipulate the degree of cohesiveness within a group, he actually manipulated similarity. That is, in the high cohesiveness condition, the ingroup was highly similar in personality traits, general backgrounds and interests, while ingroup members in low cohesiveness condition were quite different in those characteristics. He found that only highly cohesive groups elicited differential biases toward ingroup and outgroup members. Thus, his study is another example of support for the similarity hypothesis. Hensley and Duval (1976) manipulated similarities of both ingroup and outgroup, and found that as dissimilarity between opinions of the outgroup and the subject increased, liking for ingroup members increased and liking for outgroup members decreased.

One problem in this kind of study, as Locksley et al. (1980) indicated, is that the effects of social categorization, per se, on subjects' discriminatory behavior are hard to distinguish from those of inferred similarity of attributes. One attempt to distinguish between social categorization and similarity effects has been done by Billig and Tajfel (1973). They recognized that in past research, social categorization and similarity were confounded since the basis for categorization was presumably
some real similarity among ingroup members, i.e., similarity in art preference. Thus, they tried to assess the effects of social categorization, per se, using a random categorization basis. They indicate that one crucial difference between most of the similarity-attraction studies and the minimal group experiments is that in the latter the similarities and differences involved are trivial while in the former they have been more important.

Billig and Tajfel compared four conditions: categorization-similarity, categorization-nonsimilarity, noncategorization-similarity, and noncategorization-nonsimilarity conditions. Subjects in categorization-similarity condition were told whether they were in the group which preferred Klee or the group which preferred Kandinsky. Subjects in categorization-nonsimilarity condition were told that they would be divided into group X and group W and that it was just a matter of chance whether they were in either group. Those in noncategorization-similarity condition only knew the code numbers of other subjects to whom they award money. They were told that some of the code numbers were in the forties and some in the seventies, and that the experimenter gave code numbers in the forties to those who preferred the Kandinsky paintings and code numbers in the seventies to those who preferred the
Klee pictures. Subjects in noncategorization-nonsimilarity condition only knew the individual's code number, and were told that some of the code numbers are in the forties and some in the seventies and that the experimenter allotted these numbers randomly by the toss of a coin. According to the findings, only categorization-similarity and categorization-nonsimilarity conditions showed significant ingroup favoritism, and the former showed more bias than the latter. Neither of the noncategorization conditions showed ingroup favoritism, but the noncategorization-similarity condition showed nonsignificant trend towards ingroup favoritism. Thus, Billig and Tajfel conclude that the categorization variable and the similarity variable both produce significant main effects but that categorization is more important than similarity. Similarity was not found to be a necessary condition for ingroup favoritism. Although similarity affected the bias positively, it was not a crucial variable.

Hence, there exists contradictory evidence regarding the similarity-attraction hypothesis. Sometimes similarity is found to be necessary and in other cases it is not. Studies based on the minimal group paradigm insist that it is not necessary to have similarity in order to induce ingroup bias. Brown and Turner criticize the similarity-
attraction hypothesis in that it explains intergroup relations at an interpersonal level. This approach treats individual's beliefs as personal attributes, not as shared effects of their common group memberships. Despite interpersonal similarity, individuals may come to dislike each other when group memberships are salient. Salient intergroup divisions lead to perceptual accentuation of intergroup differences in attitudes and beliefs, independently of interpersonal similarities and differences. Thus, one cannot extrapolate from interpersonal similarities and attraction between individuals to their social relations when group memberships are salient, since the latter tends to produce perceived differences in beliefs between them (Brown and Turner, 1980).

Realistic group conflict theory

Compared to balance theory or the similarity-attraction hypothesis, realistic group conflict theory represents a more cohesive theoretical orientation. Actually this theory was proposed a long time ago by Sumner when he explained the origin of ethnocentrism. According to Sumner, the differentiation of people into ethnic groups originates in the context of conditions of the struggle for existence. In this perspective, attitudinal biases in favor of one's own group over other groups are the product of intergroup
competition over a real conflict of interests. This kind of explanation takes a functional approach. The functional approach of intergroup relations is represented in Sherif and his associates' field experiment. They can be regarded as the founders of this theory.

In their experiments in the 1940s and 1950s using a boys' summer camp, three sequential stages were set up to manipulate intergroup competition. In the first stage of ingroup formation, group goals as an integrating factor were introduced to create two groups. The second stage was the intergroup competition phase in which intergroup tension and competition were introduced by making groups compete for the same goals. In the third stage, superordinate goals were introduced in order to reduce intergroup conflict and lead to intergroup integration. Superordinate goals are goals that encompass all parties caught in a dispute or conflict, which cannot be fulfilled by the resources and energies of the parties separately, but require the concerted efforts of all parties involved (Sherif, 1979:258). Such goals must override some of the incompatible goals of both groups. Twenty four boys from similar family backgrounds were the subjects.

Sherif et al. (1961) contend that intergroup attitudes and behavior as manifest in the forms of social distances
and stereotypes are produced as a consequence of functional relations between groups, and that intergroup hostility and its reduction cannot be explained merely by the nature of relationships within the groups but by the nature of functional relations between groups. They hypothesized that when individuals having no established relationships are brought together to interact and work for common goals, they develop a group structure with hierarchical statuses and roles. If two groups thus formed are brought together in a functional relationship under conditions of competition and mutual frustration, attitudes and appropriate hostile actions in relation to the outgroup and its members would arise and be standardized and shared by group members (Sherif et al., 1961). Also, they hypothesized that the course of relations between two groups which are in a state of competition and frustration would tend to produce an increase in ingroup solidarity, and that functional relations between groups would bring about changes in the pattern of relations within the ingroups. Contact between groups would not in itself produce a decrease in an existing state of intergroup hostility, even if the conditions of contact may be pleasant. When groups are brought into contact under conditions embodying superordinate goals whose attainment is desired by each group, they will tend to
cooperate toward the common goal, and such cooperation will have a cumulative effect in the direction of reducing existing conflict and unfavorable attitudes between groups (Sherif, 1979).

Sherif and his associates found that when groups engaged in reciprocally competitive activities, such that the gain of desired goals by one group results in loss for the other, unfavorable stereotypes of the outgroup and its members came into use. These unfavorable attitudes were standardized in a group and the outgroup was placed at a prejudicial distance. With the rise of prejudicial attitudes toward the other group, self-glorifying attitudes toward one's own group are strengthened and the performance of the outgroup is deprecated. Also, this kind of competitive intergroup relations had an impact on relations within groups in a way that it led to the increase in ingroup solidarity and cooperativeness (Sherif and Sherif, 1979). Conflict between groups and the products of such conflict were reduced through the introduction of superordinate goals. Various superordinate goals over a period of time were necessary to sustain cooperation between groups. When contact and communication involved cooperative efforts towards superordinate goals, they were utilized in the direction of reducing conflict in order to attain the goals.
As we can see through Sherif and Sherif's arguments, realistic group conflict theory constitutes a functional theory of intergroup behavior. It implies that functional interdependence between individuals or groups for the achievement of their goals leads directly to cooperative or competitive social interaction, and that cooperative or competitive interaction directly produces favorable or antagonistic attitudes between members. Thus, the social relations between groups or individuals are determined by their functional or goal relations, and intergroup conflict and bias result from objective conflicts of interests.

Turner (1981) criticizes Sherif's study in that he confounded functional interdependence with cooperative and competitive social interaction. Turner argues that social interaction seems to matter more for intergroup attitudes than does functional interdependence, and that emphasis on the importance of the latter, per se, is not appropriate. Rabbie and Horwitz's (1969) experiment showed that ingroup bias was found which could not be explained in terms of conflict of interest, i.e., there was significant ingroup bias when subjects were deprived only due to mere chance, and there was no difference in outgroup ratings between subjects who were deprived by chance and who lost by the act of the outgroup. Realistic group conflict theory was popular until social identity theory was introduced.
Social identity theory

The most recognized and powerful theory about ingroup bias so far is social identity theory by Tajfel and his colleagues. Social identity theory has been developed as the most coherent theoretical orientation among all theories dealing with this issue. During the 1960s and early 1970s several studies were done to challenge the functional theory. These studies tended to show that intergroup competition for incompatible group goals is not necessary, but categorization and ingroup/outgroup membership, per se, is necessary and sufficient for ingroup bias.

Tajfel and Turner (1979) mention that social identity theory is intended not to replace the realistic group conflict theory but to supplement it in some respects. They indicate that the realistic group conflict theory has merit; unlike previous works on intergroup relations which have focused on individual prejudice and discrimination and on the intraindividual or interpersonal psychological processes leading to prejudiced attitudes or discriminatory behavior, the theory stressed intergroup functional relations. According to that theory, opposed group interests in obtaining scarce resources promote competition and develop into overt social conflict through competition. Sherif also argues that such intergroup competition leads to increased intragroup cohesiveness and cooperation. Thus, the real
conflicts of group interests not only create antagonistic intergroup relations but also heighten identification with, and positive attachment to, the ingroup.

Tajfel and Turner, however, indicate that this identification with the ingroup has been given relatively little prominence as a theoretical problem in its own right in realistic group conflict theory. The development of ingroup identifications is seen as an epiphenomenon of intergroup conflict in that theory. The theory does not focus either on the processes underlying the development and maintenance of group identity nor upon the possibly autonomous effects upon ingroup and intergroup behavior of these subjective aspects of group membership (Tajfel and Turner, 1979:34). Turner (1981) says that there is no doubt that people's objective interests play a major role in social conflict. However, their effects are mediated by their impact on social identifications. We cannot assume one to one correspondence between objective interests and group membership. Therefore, whilst the realistic group conflict theory focuses on the objective aspects of group relations, Tajfel and his associates propose social identity theory to emphasize the subjective aspects of it, i.e., the phenomenon of identification with the ingroup.
Before explaining the theory, it may be helpful to distinguish between two extremes of social behavior, interpersonal and intergroup behavior. Tajfel and Turner explain that behavior can be seen as falling on the interpersonal-intergroup continuum. At one extreme of the continuum, there is interaction on the basis of interpersonal relationships and individual characteristics, not at all affected by various groups or categories to which actors belong (i.e., purely interpersonal behavior). The other extreme consists of interactions between two or more individuals which are fully determined by their respective memberships in various social groups or categories, and are not at all affected by the interindividual, personal relationships between the people involved (i.e., purely intergroup behavior) (Tajfel and Turner, 1979:34).

They indicate that pure forms of these extremes cannot be found in real social situations. Nevertheless, behavior towards members of the ingroup and the outgroup will be affected by whether an individual sees the situation as being nearer to one or the other extreme. The main question researchers have to answer is what are the conditions that determine whether an actor adopts a form of social behavior nearing one extreme or the other. For example, as an intergroup conflict becomes more intense, individuals who
are members of opposing groups may be more likely to behave as a function of their respective group memberships, rather than in terms of their individual characteristics or interpersonal relationships. The nearer a social situation is to the intergroup extreme of the continuum, the more uniformity the individual members of the groups will show in their behavior towards members of outgroup, and the stronger tendency there will be for members of the ingroup to treat members of the outgroup as undifferentiated items in a unified social category. This will be reflected in a clear awareness of the ingroup/outgroup dichotomy, in the attribution to members of the outgroup certain traits assumed to be common to the group as a whole, and in value judgments pertaining to these traits (Tajfel, 1978b:44-45).

According to Tajfel and Turner, the study of ingroup bias is the study of intergroup behavior rather than that of interpersonal behavior. Thus, the theory to explain the phenomenon should be a theory at the intergroup level, not based on an interpersonal dimension. They state that the existence of a group need not depend on the frequency of intermember interaction, systems of role relationships, or interdependent goals. From the social psychological perspective, the essential criteria for group membership are that the individuals involved define themselves and are defined by others as members of a group.
Thus, they conceptualize a group as a collection of individuals who perceive themselves to be members of the same social category, share some emotional involvement in this common definition of themselves, and achieve some degree of social consensus about the evaluation of their group and of their membership. Thus, they define intergroup behavior following Sherif's definition; intergroup behavior is any behavior displayed by one or more actors toward one or more others that is based on the actors' identification of themselves and the others as belonging to different social categories (Tajfel and Turner, 1979:40). Sherif mentioned that whenever individuals belonging to one group interact, collectively or individually, with another group or its members in terms of their group identification, we have an instance of intergroup behavior.

Tajfel suggests that there are two interdependent conditions that are basic in determining behavior in terms of group rather than in terms of self; the dichotomization of the social world into clearly distinct categories, and the impossibility or serious difficulty in passing from one group to another. He indicates that there are many other conditions which are also important in increasing or decreasing the salience of group membership. However, acting in terms of group rather than self cannot be expected
to play a predominant part in an individual's behavior unless there is a clear cognitive structure of us and them and unless this structure is not perceived as capable of being easily shifted in a variety of social and psychological conditions (Tajfel, 1978c:97-98).

Although social identity theory is claimed to be a theory of intergroup behavior, there is some criticism against Tajfel's definition of a group and his theory. Bornewasser and Bober (1987) criticize social identity theory in that it takes into account only the properties of individuals. They argue that in that theory the group is no longer conceptualized as an organized whole that exists independently of individual factors. Rather, the group is seen as a product of individual cognitive processes. They indicate that according to Tajfel and Turner's definition of the social group as a collection of individuals who share a common social identification of themselves, and who perceive themselves to be members of the same social category, group formation is based on the perceived similarity of aggregated individuals concerning a relevant, individually determinable property or verbal category, and, hence intergroup behavior is mainly determined by reference to properties of individual members. Against this, Bornewasser and Bober argue that only the consideration of group structure and the
differentiation of partially individual and partially structural attributes of the group members can result in a conceptually adequate theory of group formation and intergroup behavior. They distinguish among three concepts of class, collective, and a group. A categorization based alone on individually determinable properties only results in the formation of a class or a collective, but not in the intended formation of a group, and the individual is merely defined as an element of a class, not as a part of an organized whole. They criticize that the terms "social categorization" and "identification" used in social identity theory are not able to provide an adequate explanation of group formation and intergroup behavior. Both are not sufficient to conceptualize the group as a concrete holistic entity.

When Tajfel and his associates proposed social identity theory in the early 1970s, they argued that the reason why social categorization has powerful effects on intergroup relations is because it evokes a cultural norm, i.e., because individuals expect people from outgroups to compete with the ingroup members. Thus, in their early study, Tajfel et al. (1971) performed their experiments based on social norm theory.
Through their experiments, they found that the subjects favored the ingroup in the distribution of real rewards and penalties in a situation in which nothing but the variable of irrelevant classification distinguished between the ingroup and the outgroup. Subjects attempted to achieve a maximum difference in dividing real pecuniary rewards between the ingroup and outgroup, even at the price of sacrificing other objective advantages. Tajfel and his colleagues interpreted such results in terms of a generic social norm of ingroup/outgroup behavior which guided subjects' choices, i.e., in terms of the functioning of a generic social norm which was perceived by the subjects as relevant to the solution of a problem of social conduct. Such a social norm is perceived by subjects as pertinent and is expected to operate when the social world of an individual is clearly dichotomized into an ingroup and outgroup. They argued that certain societies create generic outgroup attitudes. In our everyday life, norms, values, and expectations coming from socialization and education foster or reinforce a tendency to behave differentially towards ingroups and outgroups even when such behavior has no utilitarian value to an individual or to his/her group, and even when a particular categorization has little meaning in terms of emotional investment (Tajfel et al., 1971:151).
In the same context, when Tajfel and Billig (1974) explained their finding that subjects who were familiar with a situation showed more bias than unfamiliar ones, they interpreted this by social norm theory; greater familiarity with a novel situation can induce stronger adherence to social norms prevailing in more usual situations. Subjects showed more ingroup bias in a familiar condition because responses favoring the ingroup are normative and widely accepted in the social world of the English schoolboys who were the subjects. Increasing familiarity with a new situation induces increasing ease and certainty of normative behavior. Consequently, people in that situation show the bias which is normative in their society quite easily.

Billig (1973) tried to find evidence for the argument that ingroup bias is a normative phenomenon, that biased behavior is the outcome of certain processes of social influence. He distinguished two sources of normative influence; influence from those who create the categories, e.g., the experimenter, and influence from those who use the categories, e.g., the subjects. He indicates that in previous experiments there was no communication between subjects and thus the only possible social influence was by experimenter. However, if subjects receive communications from other subjects, they may gain social support for the
use of categorization and thus second generation subjects may build up stronger ingroup bias than first generation subjects. Therefore, he compared ingroup bias between first and second generation subjects. Contrary to the prediction, however, first generation subjects used both ingroup favoritism and fairness strategies more in rewarding money compared to second generation ones. In other words, intersubject communication did not increase the norm of ingroup favoritism, and subjects did not transmit spontaneously the normative values of groups. Therefore, this study did not support the social norm hypothesis.

On the other hand, when Ryen and Kahn (1975) interpreted their findings about the effects of different intergroup orientations on evaluation and proxemic behavior between ingroup and outgroup, they argued that this was because intergroup orientation provided expectation about involvement with the outgroup and provided normative information about how to place oneself with regard to own and outgroup members. Thus, they contended that their results supported the cultural norm explanation.

However, Tajfel himself changed the theory somewhat later on, and argued that the effects of social categorization reflect the need for a positive social identity. Tajfel and his colleagues proposed the generic
norm hypothesis as a preliminary attempt to explain ingroup bias, but soon they abandoned it because it tended toward circularity and was unheuristic and lacked explanatory power. Therefore, the revised social identity theory will be explained in the following part.

Unlike realistic group conflict theory, social identity theory contends that incompatible group interests are not always necessary for the development of intergroup bias. Even a trivial, ad hoc intergroup categorization can easily lead to ingroup favoritism and discrimination against the outgroup. Simply categorizing individuals into social groups is enough to produce ingroup bias. Social categorization produces ingroup bias even when the basis for categorizing individuals into groups is arbitrary. The mere perception of belongingness to two distinct groups and of the presence of an outgroup are sufficient to trigger intergroup bias.

There are several general assumptions of the theory (Tajfel and Turner, 1979:40). First, individuals strive to maintain or enhance their self-esteem. They strive for a positive self-concept. Second, social groups or categories and membership in them are associated with positive or negative value connotations. Hence, social identity may be positive or negative according to the evaluation of those
groups that contribute to an individual's social identity. Third, the evaluation of one's own group is determined with reference to specific other groups through social comparisons in terms of value-laden attributes and characteristics; positively discrepant comparisons between ingroup and outgroup produce high prestige, and thus positive social identity. Negatively discrepant comparisons result in low prestige and thus unsatisfactory social identity.

Based on these assumptions, Tajfel and Turner suggest a number of theoretical principles. First, individuals strive to achieve or to maintain positive social identity. Second, positive social identity is based to a large extent on favorable comparisons that can be made between the ingroup and some relevant outgroups; the ingroup must be perceived as positively differentiated or distinct from the relevant outgroups. Third, when social identity is unsatisfactory, individuals will strive either to leave their existing group and join some more positively distinct group or to make existing group more positively distinct.

In this manner, the theory borrows the basic propositions of social comparison theory and elaborates on the relationship between perceived social identity and intergroup comparison. The theory argues that social
comparisons give rise to processes of mutual differentiation between groups, which can be analyzed as a form of social competition. Turner (1975) explains Tajfel's extension of social comparison theory. He indicates that Tajfel applied several propositions of social comparison theory such as the existence of a drive to evaluate one's opinions and abilities, an evaluation of opinions and abilities by comparing with those of others, and the existence of a unidirectional drive upward in abilities. Thus, Tajfel suggests that an individual has a need to evaluate oneself, that the range of social comparison can be extended to include both social context of nonsocial and social elements, and that the important comparative dimensions for social identity parallel those of abilities rather than opinions, i.e., they are value-laden.

Social groups attempt to differentiate themselves from each other because of the pressure to evaluate one's own group positively through ingroup/outgroup comparisons and achieve a positive social identity. Thus, the aim of differentiation or categorization is to maintain or achieve superiority over an outgroup on some dimensions. Any such act, therefore, is essentially competitive. Under these conditions, intergroup competition, which may be unrelated to the objective goal relations between the groups, can occur.
Therefore, Turner distinguished between social and instrumental or realistic competition. Social competition is motivated by self-evaluation and takes place through social comparison, while instrumental or realistic competition is based on realistic self-interest. Incompatible group goals are necessary for realistic competition as realistic group conflict theory argues, but mutual intergroup comparisons are necessary and often sufficient for social competition (Tajfel and Turner, 1979:41). Social and realistic competition also differ in their consequences for intergroup behavior. After realistic competition, losing groups should be hostile to winning outgroups. However, in social competition, losing ingroups do not always derogate evaluations of winning outgroups. Also, intergroup behavior based on social competition can occur even when it conflicts with realistic self-interest. Thus, Turner (1975) indicates that any similarity between social competition and Sherif's conflict of interests would be misleading. Sherif's theory has as its basis the postulate of self-interest, not self-evaluation. Thus, realistic group conflict theory can easily explain cooperation versus competition in terms of positive versus negative interdependence of group interests, whereas in social identity theory positive interdependence with regard
to positive identity is impossible because positive social identity comes from discriminatory evaluation of others.

Turner suggests several requirements for social competition (Turner, 1975:21). First, the categorization and location of individuals within it must be explicit, non-overlapping, not in direct conflict with more strongly felt group membership and relevant to the criteria for differentiation. Second, the dimension of comparison must be recognized and shared by both groups. Third, both groups must share a similar attribution of value to a range of possible actions, and fourth, there must be room for differentiation, i.e., no necessary reason to prefer one group in reality.

Likewise, Tajfel and Turner contend that although it is nearly impossible in most social situations to distinguish between, on the one hand, discriminatory intergroup behavior based on a real or perceived conflict of objective interests and, on the other hand, discrimination based on attempts to establish a positively valued distinctiveness for one's own group, the two can be distinguished theoretically. Unlike a genuine conflict of interests, the goals of actions aimed at the achievement of positively valued ingroup distinctiveness often retain no value outside of the context of intergroup comparisons (Tajfel and Turner, 1979:46).
Social categorization is conceived of as cognitive tools that segment, classify, and order the social environment and thus enable the individual to undertake many forms of social action. It also provides a system of orientation for self-reference which creates and defines the individual's place in society. It stimulates a self-evaluative social comparison process. It tends to be internalized to define the self in the social situation and hence contribute to self-evaluation. An individual defines him/herself as well as others in terms of his/her location within a system of social categories-- specifically, social group memberships-- and social identity may be understood as a definition of his/her own position within a system (Turner, 1975).

Social groups provide their members with an identification of themselves in social terms. These identifications are relational and comparative. No group lives alone--all groups live in the midst of other groups. Thus, the positive aspects of social identity, the reinterpretation of attributes in social action, only acquire meaning in relation to, or in comparison with, other groups. Therefore, the characteristics of one's group as a whole achieve most of their significance in relation to perceived differences from other groups and the value
connotations of these differences. A group becomes a group in the sense of being perceived as having common characteristics or fate only because other groups are present in the environment. A group will be able to preserve its contribution to those aspects of an individual's identity which are positively valued only if it manages to keep its positively valued distinctiveness from other groups. Thus, social comparisons between groups are focused on the establishment of distinctiveness between one's own and other groups (Turner, 1975:7-8). One's own group must differentiate itself relative to other groups on the dimensions which have a value differential in order to fulfill one's need for a positively valued identity. Thus, an individual's positive social identity is a matter of mutual comparisons between groups--a comparison where any two groups attempt mutual but asymmetrical differentiation from each other and toward the positively valued relevant dimension.

Tajfel and Turner (1979) argue that they use the term social identity in a strictly limited sense. Social identity consists of those aspects of an individual's self-image that derive from the social categories to which he/she perceives him/herself as belonging. It is only those aspects of the self-concept based on group membership
(Turner, 1981:84). People value memberships in relatively successful groups because they want to feel good about themselves and/or look good to others. Ingroup bias can make a group to which the individual belongs seem more successful and positive and thus make the individual look better.

There are several variables that influence intergroup differentiation (Tajfel and Turner, 1979:41). First, individuals must have internalized their group membership as an aspect of their self-concept. They must be subjectively identified with the relevant ingroup. Second, the social situation must be one that allows for intergroup comparisons and enables actors to select and evaluate relevant relational attributes. Not all differences between groups have evaluative significance. Third, the outgroup must be perceived as a relevant comparison group. Ingroups do not compare themselves with every available outgroup. Such factors as similarity, proximity, and situational salience may determine outgroup comparability.

Unlike realistic group conflict theory, status is not considered as a scarce resource in this theory. Rather, it is the outcome of intergroup comparison and reflects a group's relative position on some evaluative dimensions of comparison. The lower a group's subjective status position
in relation to relevant comparison groups, the less a contribution it can make to positive social identity.

As discussed above, social groups must preserve a positively valued distinctiveness from relevant comparison groups in order for group members to maintain self-esteem. When people have an unsatisfactory or negative social identity through their membership in certain groups, therefore, they are motivated to undertake certain behavior to achieve positively valued distinctiveness. There can be various ways to achieve positive identity (Tajfel and Turner, 1979). People can react to negative social identity through individual mobility, social creativity, or social competition. Individuals can move from a low to a high status group. Social creativity means that members of the group can seek positive distinctiveness for the ingroup by redefining or altering the elements of the comparison situation. They may try to compare the ingroup to the outgroup on new dimension, or to change the outgroup and avoid using any high status outgroup as a comparison group. Also, group members may seek positive distinctiveness through direct competition with the outgroup. They may try to reverse the actual relative positions of the ingroup and outgroup on some salient dimensions, i.e., try to change the group's objective social position.
Tajfel calls the situation he uses to test ingroup bias phenomenon the "minimal intergroup situation" because social categorization, per se, without any prerequisites or any other properties of group life, can cause intergroup bias. Tajfel and his associates introduce some experimental procedures and criteria to guide research on ingroup bias and call these the minimal group paradigm. The criteria for the minimal group paradigm are as follows. First, there should be no face-to-face interaction between subjects, either in the ingroup or in the outgroup, or between the groups. Second, there should be complete anonymity of group membership. Third, there should be no instrumental or rational link between the criteria for intergroup categorization and the nature of ingroup and outgroup responses requested from the subjects. Fourth, responses of the subjects should not represent any utilitarian value to the subjects. Fifth, a strategy of responding in terms of intergroup differentiation should be in competition with a strategy based on other more rational and utilitarian principles, such as obtaining maximum benefit for all. And last, the responses should be made as important as possible to the subjects: they should consist of real decisions about the distribution of concrete rewards, rather than some form of evaluation of others (Tajfel et al., 1971:153-54).
Thus, when Tajfel and his associates perform experiments, they proceed along these lines, using anonymous subjects, allowing no interactions, and using reward allocation matrices as their measure of ingroup bias.

In criticism, Bornewasser and Bober (1987) maintain that these criteria prove that the minimal group paradigm neglects the main property of a group and its structure. As a consequence, intergroup behavior as an interaction in terms of the actor's group identification is confined to the subject's reference to a similarity criterion. However, these authors also recognize that many studies utilizing Tajfel's experimental criteria lead to results that are similar to those found with well-structured groups. Thus, this raises the question of whether even this restricted set of experimental criteria and usage of the term "group" cannot prevent subjects from presupposing structural properties and interpreting the situation in this sense. Bornewasser and Bober indicate that theoretically, there are some indications that make this assumption plausible.

According to the minimal group paradigm, ingroup bias should be produced in situations with or without an actual reward, with or without group task activity and interaction among subjects, and regardless of how bias is measured. The only requirement to obtain ingroup bias is, thus,
classification of subjects into different groups. Groups formed in this way are ad hoc groups not based on any significantly valued categorization. In the minimal group paradigm, subjects are divided into two groups based on their responses to an irrelevant judgmental or preference test. After they are informed of their own group membership, in the absence of any contact with or knowledge of other group members, they are given a choice task that involves allocating money or points between two other subjects in the experiment. The identity of the other subjects is indicated only by an identification number and a group label.

Reward allocation matrices are usually used as a measure for ingroup bias in experiments by Tajfel and other colleagues. The matrix approach has been one of the dominant methods in this research, although some investigators have criticized it by pointing out drawbacks and some problems in data analysis (e.g., Gerard and Hoyt, 1974; Brewer, 1979; Aschenbrenner and Schaefer, 1980; Bornstein et al., 1983). There are various versions and different types of matrices depending upon the combinations of distribution rules. However, the basic logic is the same. Within each matrix, each column represents an alternative allocation of points distributed between the two
target persons (one ingroup and one outgroup member), and
the subject is to choose one of the alternatives. In
Tajfel's matrices, there are usually 13 alternative
allocations. Matrices are constructed to represent a number
of different possible distribution rules that could be
applied. There are several strategies or distribution rules
which subjects can show: maximum joint profit is defined as
the choice in a matrix which results in the largest possible
common benefit to the two target individuals; maximum
ingroup profit is defined as the choice in a matrix which
corresponds to the highest number of points that can be
awarded to the member of the ingroup; maximum difference is
defined as the choice which results in the greatest possible
difference between points awarded to the ingroup member over
points awarded to the outgroup member; and fairness is a
choice to divide points equally between the two individuals
(Tajfel et al., 1971).

The result of matrices choices shows what kind of
strategy subjects used. Using a maximum difference strategy
means the subject showed ingroup bias because the purpose of
this strategy is to make the ingroup relatively higher than
the outgroup. Sometimes a combination of maximum difference
and maximum ingroup profit is called an ingroup favoritism
strategy. What is important, however, is that subjects
usually show the tendency to choose maximum difference rather than a maximum ingroup profit, meaning that people prefer a relatively higher position for the ingroup compared to the outgroup, even at the expense of own absolute profit. That is, they tend to choose more reward for the ingroup as a means to achieving positive distinctiveness from the outgroup. In most experiments, strategies of maximum ingroup profit or maximum joint profit are rarely chosen. The research shows that fairness is also a commonly used strategy. Most experiments based on the minimal group paradigm use this matrix measurement approach to operationalize ingroup bias. Most also use some evaluative scales.

There are many studies supporting social identity theory. Billig and Tajfel's (1973) study is one of them. They indicate that in previous studies, groups were formed on the basis of certain criteria of real similarity between subjects who were assigned to the same category, e.g., subjects were categorized by their visual judgments or by their painting preferences. Thus, it was not clear according to those studies whether ingroup bias was due to a similarity factor or to simple categorization. Billig and Tajfel thus established social categories on a random basis without reference to any real similarity in order to
determine whether such random categorization would still lead to ingroup bias.

They created four conditions: the categorization-similarity condition in which subjects were told their group membership and divided based on art preference; the categorization-nonsimilarity condition in which subjects were divided into two groups on a random basis; the noncategorization-similarity condition in which subjects were told their own art preference but no group label was mentioned; and the noncategorization-nonsimilarity condition in which subjects were assigned a number randomly from two series of code numbers. They measured ingroup bias by examining ingroup favoritism, maximum joint profit, and fairness strategies.

They found that as soon as the notion of group was introduced into the situation, the subjects discriminated against those in the outgroup. This discrimination was more marked than when subjects knew their different art preferences but no explicit notion of a group was introduced. The results also showed that subjects only in the two conditions involving categorization displayed significant ingroup favoritism, and those in the categorization-similarity condition showed more bias than those in the categorization-nonsimilarity condition. The
noncategorization-similarity condition showed a non-significant trend toward ingroup favoritism. Although both similarity and categorization variables produced significant main effects, the categorization variable was a more important determinant of bias than similarity. Fairness was also a popular strategy.

Furthermore, Billig and Tajfel isolated the effects of social categorization from those of similarity and showed that ingroup bias is not based on similarity, but on mere categorization. Just by inserting the group notion, a subject's definition of the situation was significantly altered. They interpret such bias as a result of searching for positive social identity through positive social comparison. Experiments using the minimal group paradigm show that categorization based on very trivial grounds can lead to ingroup bias.

As we can see in Billig and Tajfel's study, most research based on the minimal group paradigm tries to test whether subjects show ingroup bias when they are divided into groups by some criterion. There have been several interesting studies to investigate social identity theory by looking at different aspect of ingroup bias. For example, Oakes and Turner (1980) tried to test the theory by assessing directly whether the discriminatory responses
increase self-esteem. Their experimental and control conditions followed the standard minimal group paradigm except that in the control condition subjects did not complete the matrix booklets. The experimenter measured the amount of self-esteem as a dependent variable. The results showed that self-esteem was significantly higher in the experimental than in the control condition. Thus, Oakes and Turner insist that discrimination increases self-esteem, which supports social identity theory.

Lemyre and Smith's (1985) study tackles the same aspect. They criticize Oakes and Turner's study because the experimental tasks in the experimental and control conditions in that study were not of equal psychological significance, i.e., one was to fill out matrix booklets and the other was just to read a newspaper. In such case, the importance of the task can influence self-esteem. Thus, they tried to extend Oakes and Turner's study, investigating the relation between social categorization, intergroup discrimination, and self-esteem. They had a 2x2x2 design, manipulating categorization versus noncategorization variables, type of allocation task, and ordering of the allocation task and the self-esteem measurement, resulting in eight conditions. The condition which had categorization, the ingroup/outgroup matrix allocation task,
followed by the self-esteem was the basic condition in which to expect ingroup bias.

The results displayed that subjects who had been categorized and could discriminate against the outgroup through filling out matrices showed higher self-esteem than those who could not discriminate. Categorized subjects who discriminated showed higher postexperimental self-esteem than either categorized subjects who did not have opportunity to discriminate or noncategorized subjects who were engaged in a similar matrix allocation task. Thus, the results support the predictions of social identity theory about the effects of discriminatory behavior on self-esteem and show that categorization, in and of itself, is not enough to raise self-esteem.

Although the strategy of maximum difference represents ingroup bias, fairness has also been frequently found to be a popular strategy in minimal group experiments, as Tajfel has acknowledged. Thus, Branthwaite et al. (1979) contend that there are two opposing norms governing intergroup behavior— a norm for fairness and a norm for discrimination. The relative strength of these two norms and the balance between them are important questions. They found that less cohesive groups and superior groups showed more fairness, and that subjects tried to balance unequal allocations across the various matrices so that the overall
outcome would be about equal between the ingroup and the outgroup. Fairness was applied as a personal moral principle and as an alternative way of getting respect and positive identity. They argue that fairness defines a stable reciprocal balance in intergroup relations, and that norms for fairness and discrimination exert about equal influence under minimal group conditions.

Turner (1980) argues against Branthwaite et al.'s contention about the coexistence of fairness and discrimination norms. He indicates that it seems to be conceptually self-contradictory to suggest that ingroups are as fair as they are discriminatory towards outgroups, and that the hypothesis of two opposed norms may be unfalsifiable. He says that the discovery of ingroup favoritism is counter-intuitive and thus worth studying while fairness is an uninteresting outcome. It is natural for subjects to perceive fairness as a normative, desirable strategy because this norm is common in our daily lives. Thus, it is possible that subjects' responses represent a compromise between the intergroup processes which produce ingroup favoritism and the normative pressures for fairness based on interpersonal relations. Psychological processes implicated in the transition from interpersonal to intergroup relations tend to shift social behavior from
baseline fairness to ingroup/outgroup discrimination (Turner, 1980:141). Ingroup favoritism is the particular, unique result of intergroup relation. He indicates that ingroup favoritism does not always occur, i.e., intergroup attitudes and behavior vary with changes in the relationship between specific groups and are determined by a complex, social context. He argues that the theoretical task is to find unexpected phenomenon of ingroup bias despite such complex social conditions.

Aschenbrenner and Schaefer (1980) later criticize Brathwaite et al.'s study from different perspective. They argue that Branthwaite et al.'s study has some methodological weakness. Aschenbrenner and Schaefer claim that the minimal group paradigm should be correctly defined in terms of a minimal group conflict situation with the task of distributing money by use of the payoff matrices. They criticize the paradigm that it makes much sense only if a person participates in an experiment, and they claim that there is no reason to assume that the subject really believes what he/she is told. The task of distributing money by the use of matrices is suspect, causing the subject to think about the real purpose of the study. They contend that it is not correct to speak about generic norms or make general statement that minimal groups are discriminatory.
The minimal group paradigm constitutes a rather narrow, somewhat artificial experimental situation, causing the problem of generalization.

Later, Brown et al. (1980) argue against Aschenbrenner and Schaefer, contending that the ingroup bias phenomenon is universal and general. They indicate that Aschenbrenner and Schaefer's definition of the minimal group paradigm is incorrect because the paradigm cannot be considered in advance as being a conflict situation. Also, they indicate that other kinds of methods provide the evidence for ingroup bias besides just the reward allocation matrices, and studies have used children as well as college students, assuring generality of the phenomenon. Discrimination has always been found using many different analysis methods and experimental conditions. They contend that ingroup bias is not the result of an artificial experimental situation, not due to any demand characteristics as insisted by Gerard and Hoyt (1974).

As reviewed above, many studies support social identity theory and some propose counterarguments against it. Regardless of some controversy over the theory and findings, social identity theory still dominates the area of ingroup bias research. The core feature of the theory is that it integrates self-evaluation through social identity, social
categorization, and intergroup comparison processes in a coherent theoretical framework. As indicated before, this theory can be regarded as a motivational approach because it contends that ingroup bias derives from motivational process. In the following section, a rather different, new perspective to look at ingroup bias will be explicated and the rationale for it will be discussed.

Theories of Group Polarization/Choice Shift

Group polarization or choice shift refers to the tendency for group members to become more extreme in the direction of their previously held opinions after either a group discussion or learning of the preferences of others. The terms group polarization and choice shift are usually used interchangeably in research. It is difficult to clearly distinguish between these two concepts because they explain almost the same phenomenon. Some researchers define group polarization as group-produced enhancement of individuals' attitudes toward an already prevailing direction, as the average change in individuals' pre and postdiscussion responses. Choice shift, on the other hand, is defined as a difference between the mean of individuals' decisions and a subsequent collective group decision by the same individuals, i.e., the difference between the mean of
the group members' prediscussion responses and the actual group decision (e.g., Laughlin and Earley, 1982:273). When the group polarization or choice shift phenomenon was first introduced, investigators called it "risky shift", indicating the tendency for groups to take greater risks than individuals. The term "risky shift", however, became criticized because there are many cases where group decisions are not necessarily riskier than individual decisions. Contrary to the notion of risky shift, some research found a shift toward a more cautious choice after group discussion. Thus, the term "risky shift" was abandoned and people instead call the phenomenon either choice shift or group polarization.

There have been many theories to explain group polarization. Pruitt (1971a, 1971b) explains various theories such as diffusion of responsibility theory, familiarization theory, leadership theory, value theory, and decision theory. Among value theories, there are several different theories such as social comparison theory, pluralistic-ignorance theory, relevant arguments theory, and commitment theory. Pruitt (1971a) indicates that value theories seem to have the most support. He rejects diffusion of responsibility, familiarization, and leadership theories, and argues that relevant arguments theory seems to
have the most empirical support. When Lamm and Myers (1978) introduced several theories about group polarization such as social decision theory, responsibility diffusion theory, informational influence theory (relevant arguments theory), and social comparison theory, they also contended that informational influence theory has been the most strongly and consistently supported.

Although there are many theories about group polarization as we have seen, two theories can be selected as the most supported and dominant theories: interpersonal comparison theory and persuasive arguments theory. The two theories produced a lot of research and stimulated a lot of controversy.

**Interpersonal comparison theory**

As indicated earlier in this chapter, interpersonal comparison theory is based on social comparison theory, and thus it shares the same assumptions with social identity theory. Since persuasive arguments theory has been the strongest rival theory against interpersonal comparison theory, a new perspective derived from persuasive arguments theory can be an alternative explanation to social identity theory for the explanation of ingroup bias phenomenon. This section will first explain the interpersonal comparison theory briefly, and then will discuss persuasive arguments theory in more detail.
The interpersonal comparison theory has three basic assumptions (Laughlin and Earley, 1982:274). First, the typical group member is motivated to exceed or at least equal the average group member on positively valued dimensions directly or indirectly engaged by the decision task. It assumes that people are motivated to see and to present themselves as better embodiments than most other members of the group on socially desired abilities, traits, and attitudes (Lamm and Myers, 1978:176). Second, there exists a state of pluralistic ignorance in which the group members assume that they exceed or at least equal the average other member. Third, social comparison during group interaction indicates to a minority of the members that they fail to equal the average group member. A choice shift results to the extent that these members change in the positively valued direction in order to present themselves as at least the equal of the average group member on the positively valued dimension, and in order to maintain their favorable self-perception. Furthermore, even those members who meet and exceed the group average may become more extreme after group discussion. Knowing others' positions may show them that they were not as above average as they had thought. Hearing the relatively extreme positions of others may "release" these members to shift even farther.
toward the socially desirable pole. The theory assumes that group discussion exposes people to others' positions, causing them to adjust their own responses in order to maintain favorable self-conception. Knowing the positions of others is both necessary and sufficient for polarization to occur.

Likewise, as social identity theory explains ingroup bias based on the need for a positive self-evaluation and social identity through social comparison, so does interpersonal comparison theory explain group polarization based on the motivation for a positive self-image through positive social comparison with others. Cotton and Baron's (1980) study supports this theory. They argue that social comparison is solely responsible for choice shifts because it occurs without group discussion.

**Persuasive arguments theory**

The importance of persuasive argumentation in group decision making was noted in the 1930s by Thorndike, and it has been used to analyze group-induced shifts in choice by Nordhoy, St. Jean, Stoner, Teger and Pruitt, Vinokur, and Burnstein during the late 1960s and early 1970s (cited by Burnstein et al., 1973). Contrary to interpersonal comparison theory, persuasive arguments theory contends that new and persuasive arguments heard by members during group
discussion are the sole mediator of choice shifts effects, and that social comparison plays little role. Group-induced response shifts occur because certain persuasive arguments are not initially known by all group members. During group discussion these unshared arguments are introduced to those members who have been unaware of them, and these new arguments stimulate and persuade the individuals to change their opinions. The theory hypothesizes that if exchange of persuasive arguments during discussion induces response shifts, the choice-alternative to which the shift usually occurs should have a larger number of arguments and arguments which are more persuasive than those associated with the other alternatives.

There are three basic assumptions of the theory (Laughlin and Earley, 1982:274). First, there exists a pool of abstract arguments of varying persuasiveness for and against a given course of action. Second, a given argument may have been considered by at least one but not all group members, so that the arguments are collectively only partially shared. And third, during group interaction the arguments for and against a given course of action are proposed and assessed on their merits. A choice shift results to the extent that group members who had not previously considered these partially shared arguments are
convinced of their merits. The choices of other group members are used as a cue for assessing the merits of such arguments. As Pruitt (1971a, 1971b) and Lamm and Myers (1978) indicated, persuasive arguments theory has been supported widely. Some researchers such as Laughlin and Earley argue that different theories about group polarization or choice shifts need not be rivals, but rather they are complementary.

Among the representative proponents of the theory are Pruitt, Burnstein, and Vinokur. Burnstein and Vinokur's study (1975) tries to specify how in the absence of normative incentives, i.e., the desire to meet or exceed the choices of others, knowledge of others' choices can by itself change a person's mind. They attempted to show that knowledge of others' choices affects the manner in which one thinks or argues to him/herself about an issue and the opinion or choice he/she later expresses can be guided by such knowledge. They criticize that many previous studies have been focused only on the external determinants of opinion change, overlooking assumptions about internal processes. According to them, Greenwald already guessed earlier that opinion change directly depends on the arguments elicited in the recipient by the message and not so much on those contained in the message. Thus, opinion
change might be minimal if the target person was not stimulated to think of propositions beyond those contained in the persuasion attempt, and a boomerang effect could occur if he/she imagines novel counterarguments. They call interpersonal comparison theory a theory focusing on normative processes, and persuasive arguments theory a theory emphasizing persuasive argumentation or informational processes.

Burnstein was aware of research that shows choice shifts without discussion. Burnstein and Vinokur (1975) argue that finding a small shift in choice to occur even without discussion when individuals merely know each other's preference is actually consistent with persuasive arguments theory. According to the theory, knowledge of others' choices is assumed to lead a person to think of reasons or arguments others might have had for their choice—reasons which ordinarily would not come to mind without this knowledge. They contend that such reasoning functions in the same way as persuasive argumentation during group discussion; it causes the person to persuade him/herself that an alternative course of action now has greater merit than the one he/she initially preferred.

In order to test the theory, they made subjects respond to choice-dilemma items under three conditions. In the
first condition, following their choice, subjects learned one another's choices on a specific decision task and immediately afterward wrote arguments in support of each of the alternatives involved in that same item. In the second condition, subjects learned what others had chosen on a decision task and then wrote arguments in support of each of the alternatives given in a different task. In the third condition, they received no information about others' choices and only knew their own preference on a decision task, and merely wrote arguments in support of each of the alternatives involved in that same item.

Burnstein and Vinokur predicted that if knowledge of the others' choices produces a revision in the person's own preference indirectly, i.e., only when such knowledge induces the person to think of arguments explaining the others' choices, then shifts in choices would be obtained in the first condition but not in the second or third conditions. The reason is because the person is prevented from thinking in an appropriate way, from generating relevant arguments, either because of the nature of the activities he/she must perform immediately upon being informed of the others' choices (second condition), or because he/she simply does not know what others have chosen (third condition). Also, if knowledge of others' choices
induces the person to think of reasons why such a course of action might be preferred, then the person will generate more arguments in support of alternatives suggested by the positions of others in the first condition than in the second condition. The basic premise of these predictions is that shifts in choice are due to the arguments a person generates for him/herself upon learning others have chosen differently.

The results showed that significant shifts in choice occurred only when the person knew what others chose and had an opportunity to think about those choices (first condition), and did not occur if an opportunity to think about others' choices was denied as in the second condition or if knowledge of others' choices was withheld as in the third condition. The mean choice shifts did not differ between the second and third conditions. According to a postexperimental questionnaire, subjects in the first condition who said that the difference between their own initial choice and the choices of others made a difference to them tended to be disturbed and curious about the difference and to wonder about the reasons others might have had for making their choices in the first place. Also, subjects who thought of reasons the others might have had for their choices and who had new considerations come to mind produced a greater number of pro-risk arguments and
tended to shift toward greater risk (on an item from the Choice Dilemma Questionnaire that usually produced a risky shift after group discussion). Consequently, shifts occurred in the absence of group discussion only when individuals knew and thought about what others had chosen. The extent to which they thought of reasons for others' choices determined the extent to which they revised their own choice, a finding which supports persuasive arguments theory.

According to the theory, knowledge of others' choices is neither necessary nor sufficient for the occurrence of shifts in choice. Rather, shifts are due to the sharing of arguments for a particular course of action. Burnstein and Vinokur recognize that there have been a few studies in which only knowledge of others' choices seemed to produce shifts. To explain this contradictory finding, they conjectured that information about others' choices stimulates a person to generate reasoning or argumentation which would explain the reasons of their choice. In their 1975 experiment described above, they found evidence for this conjecture. They contend that the revision of opinions under the absence of group discussion is the result of intra and interpersonal information processing. Creating new and reweighing old arguments may constitute the necessary and
sufficient conditions for revision of opinion and choice. Therefore, Burnstein and Vinokur encourage more study concerning the nature of such argumentation.

Burnstein et al. (1973) compared interpersonal comparison theory and persuasive arguments theory through varying the number of others' choices available for comparison and the number of arguments others presented in support of their choices. According to interpersonal comparison theory, the magnitude of shift is a function of the number of others' choices and not of the number of arguments, while the opposite prediction draws from persuasive arguments theory. Burnstein and his colleagues argue that the extent of choice shifts depends on the likelihood that the average member will have available all or most of the persuasive arguments. If the likelihood is great, the individuals will have already made their initial choice on the basis of all or most of the arguments. Thus, not only will they have already taken an extreme position, but they also are unlikely to encounter any new persuasive arguments during discussion. On the other hand, if the likelihood is small, very few individuals will be able to gather strong support for their position during discussion and thus hardly anyone will have a good reason for changing their view. Therefore, these researchers indicate that the largest shifts will be induced by group discussion when
persuasive arguments have a moderate likelihood of being available to the average member.

In their experiment, Burnstein et al. varied the number of arguments and the number of others' positions. As a result, only the number of arguments had a main effect, thus supporting persuasive arguments theory. They indicate, however, that interpersonal comparison theory cannot be completely dismissed because a modest shift was shown when argumentation was minimal but several others' choices were known. They interpreted this finding as showing that knowing others' choices stimulated subjects to generate reasonable arguments in back of those choices.

Studies such as the one by Cotton and Baron (1980) argue against Burnstein et al.'s result by demonstrating that choice shifts occur under anonymous conditions when only social comparison information is provided, and by showing no relationship between choice shift measures and argument measures. They contend that various forms of social comparison information produce choice shifts but do not lead subjects to produce arguments favoring that shift. Thus, social comparison theory is the best for explaining choice shift phenomenon under conditions with no group discussion. However, as Burnstein et al. (1973) pointed out, the persuasive arguments explanation need not be
restricted only to group discussion conditions. They showed that it can also explain the phenomenon without group discussion.

Several studies also found that the number of arguments is an important factor influencing the amount of choice shift. Hinsz and Davis (1984) tested the influence of information exchange in terms of the number and persuasiveness of arguments on group polarization and choice shifts. Their experiment separated the number and persuasiveness of arguments, and assessed the importance of both factors. Furthermore, they tested for both group polarization and choice shifts. The results showed that a larger number of arguments and a higher level of persuasiveness both significantly increased polarization toward risk on a risky choice dilemma item and increased polarization toward caution on a cautious item. In terms of choice shifts, higher persuasiveness increased shift toward risk on a risky item, but a larger number of arguments increased shift toward caution on a cautious item. Thus, despite some differences between polarization and choice shifts, the findings showed significant effects for both the number and persuasiveness of arguments, and therefore supported persuasive arguments theory.
Synthesis of the Theory and Hypotheses

As indicated before, interpersonal comparison theory draws its basic premise from social comparison theory and thus shares the same theoretical ground as social identity theory. In the area of group polarization or choice shift, persuasive arguments theory has been widely supported and has shown itself to be a more powerful explanation than interpersonal comparison theory.

The main purpose of this research is to borrow persuasive arguments theory for the study of ingroup bias and apply it into the study, and to suggest a new approach based on persuasive arguments theory as an alternative to social identity theory. This new approach takes a cognitive perspective because it emphasizes cognitive informational processes within the individual.

Wilder (1986), when he argued the need for more cognitive studies about intergroup behavior, contended that a cognitive approach to intergroup bias regards bias as a product of the ways individuals select, structure, and process information. He regarded this orientation as an addition to, rather than a replacement for, more functional and motivational explanations. A cognitive orientation focuses on the information processing mechanisms by which knowledge and beliefs are acquired and utilized. The person
viewed from this perspective is one who is actively coping with incoming stimuli, continually attending to, encoding, and interpreting information, and retrieving it from memory. The person is seen as one who is adapting to a complex stimulus world through the use of cognitive mechanisms. Likewise, according to a cognitive approach, a human being is a thinking, cognizing person (Taylor, 1981).

As Burnstein and Vinokur (1975) indicated, persuasive arguments theory emphasizes informational processes occurring within or between persons, as opposed to an emphasis on desirability or motivational factors. This research suggests that the ingroup bias phenomenon may be based on such informational processes within individual members of a group, i.e., on intrapersonal information processing, rather than on motivational factor as social identity theory argues. Ingroup bias may depend upon the reasoning or argumentation that people use as they think about the reasons they and others from both the ingroup and outgroup may have had for their choices, choices which were the basis for their categorization into groups. It will depend upon the amount of argumentation or thinking both for and against one's own choice and the choice of the outgroup. As choice shifts in the absence of group discussion have been proved to be the result of intra and interpersonal
information processing, so ingroup bias may be proved to be the result from intrapersonal information processing. Following categorization, subjects may start thinking, creating new arguments and reweighing old arguments about why group members made the initial choices which allocated them into different groups, and this cognitive work may alter subjects' minds and cause a change toward ingroup bias. Moreover, ingroup bias may be due to the fact that subjects tend to think naturally more about their own choice than about the other group's choice and such biased cognitive thinking leads to a biased evaluation in favor of the ingroup.

This research draws several hypotheses from persuasive arguments theory, focusing on the effect that listing reasons, either in favor of the ingroup or outgroup's choice, will have on the magnitude of ingroup bias. The research proposes to study ingroup bias under several conditions: a condition in which subjects are given the opportunity to think about reasons, but are not instructed to do so; a condition in which subjects are directed to think about and list reasons only for the ingroup's choice; a condition in which subjects are directed to think about and list reasons only for the outgroup's choice; and a condition in which subjects are prevented from thinking
about any reasons due to their attention to other activities, i.e., due to some distraction.

The study hypothesizes that:

1. Subjects who are given the opportunity to think about reasons but are not directed to do so will show a moderate amount of ingroup bias, because they are implicitly thinking of reasons for their own choice (basic, replication condition).

2. Subjects who are directed to think about and list reasons for the ingroup's choice will show the highest amount of ingroup bias because as they think mostly about reasons for their own and other ingroup members' choices, they will produce more, new persuasive arguments supporting their choice (ingroup condition).

3. Subjects who are directed to think about and list reasons for the outgroup's choice will show no ingroup bias or reverse bias because as they think mostly about reasons for outgroup members' choices, they will produce more, new persuasive arguments supporting the outgroup's choice (outgroup condition).

4. Subjects whose attention is directed toward other activities will show no ingroup bias because they will not have an opportunity to think about reasons for either the ingroup or the outgroup's choice due to the distraction (distraction condition).

In addition, the study tries to see whether there is a significant relationship between the number of reasons listed and the amount of ingroup bias in such a way that as subjects list more reasons for ingroup members' choice, they will show more ingroup bias and as they list more reasons for the outgroup's choice, evaluation of the outgroup will be increased. In choice shift research, it has been found
that the number of arguments is positively related to the amount of choice shifts.

Recently, a new line of thinking which fits persuasive arguments theory came from Billig, one of Tajfel's colleagues who has been involved in intergroup bias research and has been one of proponents of social identity theory. Billig offers an alternative approach to the study of prejudice which has been based upon the notion of categorization, and he calls it the rhetorical approach. His rhetorical approach shares common arguments with the theoretical framework of this research. The rhetorical approach, unlike that of the categorization, does not assume the inevitability of prejudice. He argues that the categorization approach ignores the issue of tolerance, and that by focusing on categorization as a cognitive process, it has overlooked an opposing process, that of particularization.

If categorization refers to the process by which a particular stimulus is placed in a general category, particularization refers to the process by which a particular stimulus is distinguished from a general category or from other stimuli (Billig, 1985:82). The term particularization means the process by which an individual stimulus is distinguished from a category and treated as a
particular case. Categorization theorists have often tended to treat cognition according to a rather a mechanistic model. Billig suggests that a less mechanical perspective is possible if the relations between the two processes of categorization and particularization are considered from a rhetorical perspective, which examines the argumentative nature of thought.

The rhetorical approach permits a distinction between prejudice and tolerance on the basis of argumentative content, rather than form, and thereby avoids assuming the inevitability of prejudice. As we can see, such emphasis on content rather than form, and on argumentative nature of thought makes Billig's ideas similar to persuasive arguments theory. He says that particularization and categorization as psychological processes are integrally linked on cognitive level, so that a separation of people into those who categorize (the prejudiced) and those who particularize (the tolerant) would ignore the interrelatedness of the two processes. Therefore, it may be more effective to distinguish between prejudice and tolerance on the basis of content. Billig argues that attitudes have important argumentative aspects. If the world can be categorized in different ways, then the choice of one particular categorization can be seen as being part of an argument
against another way of viewing things, and is to be defined by argument against argument. He criticizes Tajfel by pointing out that in Tajfel's theory stability is associated with categorization and change is explained in terms of motivational processes. What is lacking is any purely cognitive element, which might operate flexibly to show the cognitive aspects of change.

To test these ideas Billig and Cochrane examined the complexities of prejudiced and tolerant arguments expressed by British working class adolescents. According to these researchers, one way to highlight the argumentative aspect of attitudes is to set up discussion groups and then to observe participants expand upon and defend their arguments, when confronted by the arguments of others. Using this methodology, they found that the arguments on the topic of race were seldom based on straightforward divisions between racist and anti-racist positions. Instead, most participants were likely to use both racist and tolerant themes. Billig contends that the rhetorical approach would not view the expression of arguments simply as a matter of drawing topics from a existing store of arguments. Novel arguments, and novel situations, might elicit novel, previously unformulated, responses. Thus, he points out that it is not surprising that extreme minority opinions can produce effects on majority attitudes, for minority opinions
will be setting up new topics for debate to be examined by new arguments. Even if the minority views are rejected, they will not leave the majority attitudes unchanged, for new stocks of arguments will have been formed. In this way, one might find oneself formulating views in the course of a debate; thus, rather than it being the attitude which determines in a strict sense what is said, the attitude in a real sense might only be discovered through argumentation.

As such, Billig's new approach shows a new theoretical direction to the study of ingroup bias, one in which prejudice following categorization is not taken for granted. Furthermore, Billig's discussion illuminates and supports the basic theory behind this study. A similar argument has been presented earlier. Schroder et al. (1967) suggested attitudes as information-processing structures. They argued that interpersonal and intergroup attitudes are formed as a consequence of the differentiation and integration of dimensions of information about a domain of stimulus. Integration of other than only the salient and congruent items of information and integration of more than one dimension tend to result in a less extreme and less categorical attitude. It is generally recognized that cognitively complex people are less likely to categorize. If this is true, then a reasoning process which leads to
more complex cognition will lead to less categorization based on simple categories and to less discrimination in favor of the ingroup. Gardiner's (1972) research shows a negative relationship between cognitive complexity and intergroup bias.

Linville and Jones (1980) and Linville's (1982) complexity-extremity hypothesis may also be helpful for the basic argument of the study. They tested the hypothesis that people would have a more complex schema regarding ingroup than outgroups, and thus, appraisals of outgroup members would be more extreme or polarized than those of ingroup members, i.e., greater complexity would result in evaluative moderation.

Using white subjects, Linville and Jones (1980) found that when application credentials were positive, an outgroup member (black or opposite sex) was evaluated more favorably than ingroup members, and when the credentials were weak, the outgroup member was evaluated more negatively. White subjects showed greater complexity about white people than about blacks. The finding that subjects evaluated an outgroup member more favorably than ingroup member in the case of positive information is contrary to ingroup bias. They answer the question of how the evidence for more favorable ratings of an outgroup member with strong
credentials can be reconciled with ingroup bias study. They say that the mediating factor is the amount and kind of information provided about the individual being evaluated. The reason ingroup bias is displayed in most studies is because those studies involve evaluation of a group as a whole based on only scanty information. Thus, the study suggests that outgroup members can be beneficiaries of favorable information (e.g., when they have strong credentials) because they stand out strongly from the outgroup which may be viewed negatively. Therefore, they argue that instead of uniform favorable bias toward either ingroup or outgroup, the direction of bias may be depend on the information about the group member. They indicate that the evaluative side of intergroup relations may be closely tied to the cognitive side.

Linville (1982) criticizes traditional theories of stereotyping which assume that stereotyping has unidirectional evaluative consequences following from the categorization of individuals on the basis of salient cues. Such an assumption of unidirectional bias is incorrect because positive information will lead to more favorable ratings of an outgroup. Thus, the direction of the bias depends on the favorability of information about a specific group member. She extended Linville and Jones' study
further and proved the hypothesis was valid. She argues that her study supports the speculations that a cognitive mechanism influences intergroup evaluation, and that the evaluative bias is bidirectional as opposed to unidirectional. Also, she contends that the complexity-extremity hypothesis complements rather than contradicts motivational theories because the extremity prediction can coexist with a main effect by group membership. The evaluative aspect of intergroup relations is tied to cognitive structure and specifically to the lack of complex interpretive mechanisms for processing information about outgroup members. Such contention supports the theoretical basis of this study and is consistent with its main arguments. If ingroup members generate more persuasive arguments for the outgroup, it means a more complex cognitive representation of the outgroup. Such increased complexity will lead to a less extreme, depolarized evaluation of outgroup, and such change may result in reduced ingroup bias.
CHAPTER IV. DATA AND METHODS

Pretests

Before conducting a major test, two pretests were conducted to find out whether the theoretical approach seemed valid and whether experimental procedures used in the past by Tajfel and Burnstein and Vinokur might be modified and combined. The chapter will first explain briefly those pretests and their results.

Pretest 1

The basic idea and hypotheses of this pretest are mainly drawn from Burnstein and Vinokur's (1975) research which showed how persuasive arguments theory can explain choice shifts in the absence of group discussion. In their experiment, three conditions were manipulated: a condition in which subjects know others' choices and generate arguments supporting the same choice item; a condition in which subjects know others' choices but generate arguments about a different choice item; and a condition in which subjects do not know others' choices and generate arguments about the same choice item. It was found that choice shifts occurred only when subjects knew what others chose and had an opportunity to think about those choices. Based on this experiment, this pretest intended to manipulate several
conditions in which subjects can or cannot think about reasons for their own or others' choices and to show how such conditions may make a difference in the magnitude of ingroup bias.

Subjects were college students recruited from a sociology course, and they were given extra credit points for their participation in the experiment. The experiment was conducted during the regular class time and lasted about one hour. A total of 44 students participated in the experiment, but three of them were excluded from the data analysis due to incorrect responses (they listed reasons in a wrong way). Among the remaining 41 subjects, 25 were females and 16 were males.

Five conditions were run simultaneously; the total number of subjects in the first condition was 9, 8 in the second condition, 6 in the third condition, 9 in the fourth condition, and 9 in the fifth condition. The research used experimental method, random assignment of subjects to conditions, and an experimental questionnaire which mainly contained questions about how subjects evaluate the ingroup and the outgroup.

The procedure was as follows. First, subjects signed the consent form. In the consent form, the purpose of the study was disguised as a study about cognitive schema.
Subjects were told that the study would test the relative impact of audio versus visual stimulation on the formation of personal schemas. The experimenter handed out questionnaires and collected the signed consent forms. Subjects then listened to two pieces of music composed by Erik Satie (two minutes of each piece), and silently indicated their choice of music on the questionnaire. Then the experimenter showed slides of two paintings each by Klee and Kandinsky, and subjects publicly raised their hands to indicate their choice of painter. Subjects moved their chairs based on their choice of painting to either side of the classroom. Those who chose Klee's painting were called the Klee group, and those who chose Kandinsky's were called the Kandinsky group in the questionnaire. As explained below, for subjects in conditions one, two, and three, there was no further mention of music and their questionnaires focused on the groups formed by preference of painter. For subjects in condition four, there was no further mention of the paintings and their questionnaires focused on the groups formed (silently and invisibly) by music preference. Subjects in condition five considered both music and paintings in their questionnaires. Subjects filled out the questionnaire at their own pace. After finishing it, the experimenter handed out a sheet to ask subjects to guess the
hypotheses behind the study and to make comments about the study. Finally, the experimenter collected the questionnaires and debriefed the subjects thoroughly.

The first condition (basic condition) was intended to replicate Tajfel's experimental procedures. In this condition, subjects were not asked to list reasons for either their own or other subjects' choice of paintings. They went directly to pages of the experimental questionnaire which asked them to evaluate both the ingroup and outgroup. It was hypothesized that subjects in this condition would show moderate ingroup bias because they would implicitly think about the reasons for their own choice of painting even though they were not given much time for such thinking, and they were not directed to do so. In the second condition ("both" condition), subjects were asked to list reasons for both their own group and the outgroup members' choices of paintings, and then asked to evaluate both the ingroup and outgroup. It was hypothesized that subjects in this condition would show less ingroup bias than those in the basic condition because, in addition to thinking about ingroup reasons (which presumably also occurs in the basic condition), these subjects were also directed to think about outgroup reasons. This thinking process would lead to less prominent ingroup bias because it would
produce new persuasive arguments for the outgroup's choice of painting. In the third condition (outgroup condition), subjects were asked to list reasons only for the outgroup members' choice of painting and then to evaluate both the ingroup and outgroup. It was hypothesized that subjects would show no ingroup bias or even reverse bias (favoring the outgroup over the ingroup) because they would mainly think about reasons for the outgroup members' choice, and such thinking process or argumentation would produce new persuasive arguments for the outgroup's choice of painting which would, in turn, lead to no ingroup bias or reverse bias. In the fourth condition (music condition), subjects were led to think about their classification into two music groups (music A and music B groups) based on their choice of music. They were asked to list reasons for both their own group and the outgroup members' choice of music, and to evaluate both the music ingroup and music outgroup. It was hypothesized that subjects in this condition would show no ingroup bias because of a lack of distinction or differentiation between the ingroup and outgroup. This lack of differentiation was presumed because subjects raised their hands for their choice of paintings and were separated spatially based on that choice, but were only labelled as belonging to music A and music B groups in the
questionnaire. In other words, subjects never publicly indicated their music preference and could not guess who might be in their group or the other group. In such a situation, subjects' classification based on paintings would be much more salient, and so presumably would be ingroup/outgroup feelings, than their classification based on music. In the fifth condition (distraction condition), subjects were divided into two groups based on their choice of paintings (as in all other conditions), then asked to list reasons for choosing both music A and music B, and then asked to evaluate the painting ingroup and outgroup. It was hypothesized that subjects in this condition would show no ingroup bias because they would not have opportunity to think about reasons for choosing paintings due to the distraction, i.e., due to listing reasons for the choice of music rather than painting.

Ingroup bias was measured by two kinds of methods; 18 semantic differential scales were used as an evaluative measure and the two-choice matrices designed by Brewer and Silver (1978) were used as a behavioral measure of ingroup bias. The study used two different measures because ingroup bias is supposed to have both evaluative and behavioral aspects. Subjects evaluated both ingroup and outgroup members by selecting one point on a seven point scale, with anchor points such as likable/dislikable,
friendly/unfriendly, etc. The 18 dimensions of the scales were likable, friendly, capable, pleasant, intelligent, desirable as a friend, attractive, original, organized, artistic, confident, generous, creative, talented, sophisticated, good taste, and rational. The favorable and unfavorable end points of the scales were arranged alternately to prevent response set.

The result of scale responses was analyzed using matched pairs analysis. Each subject's outgroup evaluation was subtracted from the ingroup evaluation and summed across the 18 dimensions. The mean of these values for each condition are: 24.06 (s.e.=10.91) in the basic condition, 2.56 (s.e.=1.49) in the "both" condition, -2.50 (s.e.=4.55) in the outgroup condition, 9.33 (s.e.=4.72) in the music condition, and 10.89 (s.e.=5.22) in the distraction condition. The result of t-tests to see whether the mean in each condition is significantly different from zero was:

- t=2.21 (p<0.06) in the basic condition, t=1.72 (p=0.13) in the "both" condition, t=-0.55 (p=0.61) in the outgroup condition, t=1.98 (p<0.09) in the music condition, and t=2.09 (p<0.08) in the distraction condition (all two-tailed). Thus, according to t-tests, subjects in the basic, music, and distraction conditions showed ingroup bias at marginally significant levels. The t-test for the total
sample of subjects was $t=3.15$ ($p<0.01$), which shows that there was overall ingroup bias across conditions. Nonparametric Wilcoxon signed-rank test was performed as an alternative to t-test because the number of subjects in each condition was quite small. According to this, subjects in the basic condition and the distraction condition showed significant ingroup bias ($p<0.01$ and $p<0.05$ respectively), and those in the music condition showed the bias at a marginal level of significance ($p<0.08$). According to the general linear model, however, there was no difference in terms of means by condition ($F=2.21$, $df=4, 36$; $p<0.09$; $R^2 =0.198$). Also, the amount of ingroup bias was not different by sex.

Matrices proposed by Brewer and Silver (1978) were used as a behavioral measure of ingroup bias. There are four kinds of strategies or distribution rules: equality, relative gain, own gain, and joint gain. Those correspond to fairness, maximum difference, maximum ingroup profit, and maximum joint profit strategies, respectively, of Tajfel's matrices. Subjects had to choose one of two allocation types to give extra credit points to ingroup and outgroup members who would participate in the research next semester (matrices will be explained in detail later). There was a mistake in the questionnaire, so that the results of
matrices for the subjects who chose the Kandinsky painting in the basic, "both", outgroup, and distraction conditions and for those who chose music A in the music condition could not be obtained. Thus, the results are only based on 33 subjects. Subjects used the relative gain strategy dominantly in both the basic and "both" conditions, thus showing ingroup bias. However, those in the outgroup, music, and distraction conditions chose both equality and relative gain almost equally. Overall, subjects selected relative gain most often (twice as much as the equality strategy), and chose equality next frequently. The own gain and joint gain strategies were only small portion of the total choices.

In addition, it was found that the correlation between the number of reasons listed for the outgroup's choice of painting and the evaluation of the outgroup in the outgroup condition was $r=-0.933$ (p<0.05). Thus, the more reasons subjects listed for the outgroup's choice, i.e., the more they thought about the outgroup and produced arguments for its choice, the more favorable were their evaluations of outgroup members. This supports the prediction by persuasive arguments theory. However, there was no relationship between the number of reasons listed for the ingroup's choice and the evaluation of the ingroup in the "both" condition.
As we have seen above, the pretest showed that subjects evaluated the ingroup more favorably than the outgroup and tended to give more reward to the ingroup than to the outgroup. The basic condition showed significant ingroup bias, supporting the hypothesis. However, contrary to the hypotheses, subjects in the music condition and in the distraction condition also showed ingroup bias, although it was at marginal levels. There are plausible reasons for that. The manipulation for the music condition may not have been appropriate. While it is true that the ingroup and outgroup based on the choice of music were not visible, subjects could still conceptualize the existence of a distinct ingroup and outgroup and the groups were labelled as "music A" and "music B" in the questionnaire. Thus, the intention to minimize and obscure categorization in the music condition might not have been achieved. The results in the distraction condition may have occurred because the distracted activity was not strong enough to actually distract subjects from thinking about the paintings and their choices. This possibility seems to be plausible because in response to a question at the end of the experimental session, "How much did you think about the reasons that your (or the other) group members might have had for making their choice of paintings", subjects in this condition indicated they had thought about it a lot. In
fact, their answers were higher than in any other condition. As predicted, subjects in the outgroup condition did not show ingroup bias. Their evaluation was the reverse of ingroup bias although it was not significant. Despite rating the outgroup higher than the ingroup on the average, the mean evaluation of the ingroup across the total 18 scales in this condition was the highest among all conditions. Subjects in the "both" condition did not show ingroup bias; actually the mean was the second lowest, following that of the outgroup condition. Thus, it seems that thinking about both the ingroup's and the outgroup's reasons tends to lead to a balanced, fair evaluation. The results of matrix choices, however, seems somewhat different from that of the scales. Contrary to the results from the scales, subjects in the "both" condition strongly preferred relative gain, which means ingroup bias. Thus, it is possible that the kind of measurement used for measuring ingroup bias makes a difference in the results.

This pretest provided some interesting preliminary data but also pointed to a number of drawbacks in the research design. First of all, a majority of subjects chose the paintings by Klee, and thus the size of the two groups was not equal (Klee group: 34 subjects, Kandinsky group: 7). This may have caused majority versus minority effects. Second, the manipulation of conditions was probably
ineffective or incorrect, especially for the music and
distraction conditions, as indicated above. Also, according
to their responses to the postexperimental questionnaire,
many subjects could guess or at least come close to guessing
the experimental hypotheses and purpose of the research.
Thus, there is a possibility that these subjects might have
answered the questions and evaluated the groups in response
to the demand characteristics of the situation.
Furthermore, subjects in this study were not anonymous, and
thus previous acquaintance or personal preference might have
influenced their evaluation of the groups. Also, the size
of a group might have been too big because the whole class
was divided into two groups. Based on the results of this
study, a second pretest was conducted which revised many of
the procedures used in the first pretest.

Pretest 2

The basic purpose of the second pretest was the same as
that of the first pretest except some conditions were
replaced by other conditions. This was conducted two months
after the first pretest. Subjects were college students who
were taking a sociology course. They were given extra
credit points for their participation in the experiment.
The experiment was run during the regular class hour and
lasted about one hour. A total of 25 students participated
in the experiment, but one subject was excluded in data analysis because he did not take the procedures seriously. Three conditions were run simultaneously; 9 subjects in the first condition, 7 in the second condition, and 8 in the third condition. There were 17 female subjects and 7 males. The range of age was between 19 and 30, and about half of the subjects were juniors. As in the first pretest, an experimental method and a questionnaire were employed. The questionnaires were stapled not only at the top but also at the bottom in order to prevent subjects from moving through the pages at a different pace. The experimenter told all the subjects when to tear off the page and move on to the next section.

There were three conditions. The first condition (basic condition) was intended to demonstrate basic ingroup bias. Subjects were not asked to list reasons for their choice of paintings but instead were asked to just relax for several minutes and think about whatever they wanted to think about. As in all conditions of this second pretest they evaluated both the ingroup and outgroup as categorized by painting preferences (no music was involved in this pretest). It was hypothesized that subjects in this condition would show moderate ingroup bias. The second condition (ingroup condition) was a new condition which was
not tested in the first pretest. In this condition, subjects were asked to list reasons for their own and other ingroup members' choice of painting, and then evaluate both the ingroup and outgroup. It was hypothesized that subjects in this condition would show the most ingroup bias because they would think mostly about the reasons for ingroup members to choose the same paintings as they did. Such reasoning would produce new persuasive arguments for the ingroup's choice which would lead to increased ingroup bias. In a third condition (outgroup condition), subjects were asked to list reasons for only the outgroup members' choice of paintings and then evaluate both the ingroup and outgroup. It was hypothesized that subjects would show no ingroup bias or even reverse bias.

The procedure was as follows. First, subjects signed the consent form. In the consent form, the purpose of the study was explained as a study of seating arrangements and nonverbal cues. In order to disguise the purpose of dividing them into groups and having them evaluate each other, subjects were told that the study is about the relationship between seating arrangements and nonverbal cues and that they would be asked to sit in a several, different seating arrangements and answer questions about their judgments and perceptions of others. To make the cover
story believable, the experimental session was divided into three segments: a first seating arrangement followed by half of the evaluation scales, a second seating arrangement followed by the reward allocation matrices, and a third seating arrangement followed by the rest of the evaluation scales. All conditions were identical except for the time immediately after each seating arrangement during which some subjects listed reasons and others did not. After collecting the consent forms, the experimenter handed out the questionnaires. Subjects were asked to fill out the first page of the questionnaire which mainly included questions related to social space (e.g., "Where do you usually sit in a classroom?"). Then the experimenter showed two pairs of slides; one pair were paintings by Klee and the other pair by Kandinsky. After studying the slides, subjects raised their hands to indicate their choice of paintings and then took a seat on either side of the room based on that choice. Thus, subjects were divided into two groups, the Klee group and the Kandinsky group. Next, the experimenter told the subjects to move on to the next page and complete what was referred to as the "first transition period". During the first transition period, subjects in the basic condition did nothing, while subjects in the ingroup and outgroup conditions listed reasons for either
their ingroup or outgroup's choice of paintings, respectively. After about 3 to 4 minutes, the experimenter told them to go on to the next page referred to as "nonverbal cues from first seating arrangement". In this section, subjects rated the ingroup and outgroup members on nine semantic differential scales. Next, subjects were asked to seat themselves in a different arrangement. Each group made a circle. Subjects completed the "second transition period" which contained the same activity as in the first transition period (either listing reasons or relaxing). After completing that, they moved to a page called "allocation cues from second seating arrangement", in which they allocated extra credit points to the ingroup and the outgroup using the Brewer and Silver matrices. Then subjects moved to the third transition period. During this period, those in the basic condition did nothing and were asked to think about whatever they want to think about. Those in the other conditions were given a list of possible reasons for choosing a paintings (e.g., color, design) and were asked to rank the 10 most important reasons for choosing either the same paintings as they chose (ingroup condition) or the other paintings (outgroup condition). Then subjects completed a page called "nonverbal cues from third seating arrangement", in which they again evaluated both ingroup and outgroup members using another set of nine
evaluation scales. At this point, the experimenter told them that they could go ahead and finish the rest of questionnaire at their own pace. After finishing the questionnaire, the experimenter handed out a sheet which asked subjects to guess the hypotheses behind the study and make comments about the study. The experimenter collected the questionnaires and debriefed subjects thoroughly.

The same two kinds of measurements for ingroup bias were used as in the first pretest. The dimensions of the scales were somewhat different from those in first pretest, however (i.e., such dimensions as capable, imaginative, original, artistic, creative, and good taste in first pretest were replaced by those as competent, effective, trustworthy, responsible, kind, and cooperative). The scale responses were again analyzed using matched pairs analysis. The mean for each condition are: 8.89 (s.e.=2.89) in the basic condition, 13.50 (s.e.=11.05) in the ingroup condition, and 5.75 (s.e.=3.99) in the outgroup condition. The results of t-tests were: t=3.07 (p<0.02), t=1.22 (p=0.28), and t=1.44 (p=0.19) respectively (two-tailed). Thus, although the mean of the ingroup condition was the highest, its standard error was very large and only the basic condition showed significant ingroup bias. Neither the ingroup nor outgroup conditions showed significant ingroup bias. The result of Wilcoxon signed-rank test was
the same; significant ingroup bias occurred only in the basic condition. The mean for the total sample of subjects was 9.0 (s.e.=3.26), and was significantly different from 0 (t=2.76; p(0.02). Thus, overall, subjects evaluated the ingroup members more highly than the outgroup members. According to general linear model, there was no difference in means among the three conditions (F=0.40, df=2, 20; p=0.68; $R^2=0.038$).

The result of matrice choices is not available because of a problem in the questionnaire, i.e., because matrices were not relevant for those who chose Kandinsky paintings and this time the majority of subjects (n=16) chose Kandinsky paintings.

There was no significant relationship between the number of reasons listed for ingroup or outgroup's choice of painting and the amount of ingroup bias. To see whether the manipulation of listing reasons was effective, a question at the end of the questionnaire asked the subject how much he or she thought about the reasons behind the ingroup's and the outgroup's choice of painting. In the basic condition, the mean was 2.33 for thinking about the ingroup and 2.33 for thinking about the outgroup on a scale from 1 to 5, where higher scores indicate more thought. In the ingroup condition, the mean was 3.66 for the ingroup's choice and
2.83 for the outgroup, and in the outgroup condition, 2.88 and 4.13. This means that subjects in the basic condition thought about the reasons for the ingroup and outgroup's choice of paintings equally, and those in the ingroup condition thought about the reasons for the ingroup's choice more than those for the outgroup's choice, and those in the outgroup condition thought about the reasons for the outgroup's choice more than those for ingroup's choice. Therefore, this shows that the manipulation—repeatedly listing reasons—was more successful than it was in the first pretest, when subjects listed reasons only once.

In general, the study showed that subjects evaluated the ingroup more favorably than the outgroup across conditions. The predictions for the basic and outgroup conditions were supported while the prediction for the ingroup condition was not supported. Different from the results of first pretest, the direction of bias in the outgroup condition was not reverse. Also, although the ingroup condition had the highest mean, ingroup bias was not significant probably due to big standard error value. One encouraging finding, however, was that the values of the means for the three conditions were in the predicted order; the highest in the ingroup condition, middle in the basic condition, and the lowest in the outgroup condition. Nevertheless, ingroup bias was not different by condition
according to an F-test, probably due to big standard error values.

This pretest tried to remedy some of drawbacks found in the first test. For instance, it contained three transition periods in order for subjects to think more about reasons and have more time for argumentation. Also, the cover story was changed so that subjects could not guess the hypotheses. To disguise the real purpose of the study, subjects were asked to move seats several times. Such disguise proved to be successful according to postexperimental question, i.e., most subjects could not guess the hypotheses. As another way to disguise the purpose, 18 scales were divided into two parts and matrices were inserted between them. However, there were also some problems. Especially disappointing, once again the size of the two groups were not equal, i.e., 16 subjects chose Kandinsky and 8 chose Klee paintings, although this pretest tried to prevent this by showing two different paintings by each artist. Despite careful selection and pretesting of the paintings used, it seemed impossible to ensure approximately equal choice of the paintings in any given set of subjects. Thus, the main test was designed to prevent this problem by using confederates.

Through the results of two pretests, it was shown that the hypotheses drawn from persuasive arguments theory have some plausibility even though some results did not reach
statistically significant level probably due to small number of subjects. Thus, based on these tests, the main test was designed and conducted.

Subjects and Conditions

Subjects were undergraduate students who were enrolled in several sociology courses. Most of them participated voluntarily for extra credit points, and only several of them participated voluntarily without any extra credit. Subjects can be presumed to be unaquainted because they came from different classes. The data were collected through five sessions, and each session had a total of 17 to 22 subjects, who consisted of one ingroup and one outgroup. Thus, the size of groups in each condition ranged from 8 to 12 people. Female subjects were somewhat more numerous in each session, but the sex composition was not radically skewed. A total 72 students participated in the experiment. Out of that number, 7 subjects were deleted in data analysis because 6 of them guessed the purpose and hypotheses of the study correctly according to their responses to postexperimental questions, and one violated the conditions of the experiment. He based his evaluation of the ingroup entirely on his observation of the behavior of the subject sitting next to him. This was very clear from his comments on the postexperimental questionnaire. Thus, the analysis
is based on the responses of a total of 65 subjects, 34 females and 31 males. The distribution of subjects by school year is: 18 freshmen, 22 sophomores, 12 juniors, and 13 senior students. The range of age was from 18 to 51 (two students were in their thirties, one in his 40's and one 51, with the rest between 18 and 20s). Five to seven confederates, who were also students in sociology courses and given extra credit points for their participation, were used in each session. The purpose of using confederates was to make the size of the ingroup and outgroup approximately equal. Confederates were instructed to join the group which was smaller than the other group.

The basic condition was conducted entirely in one session, and the distraction condition in another. The ingroup and outgroup conditions were run simultaneously using three sessions. The size of the session for the basic condition was 21, among them 5 were confederates. Thus, there were 16 real subjects in the basic condition, and one of them was excluded in data analysis. The session for the distraction condition consisted of 22 students, among them 5 were confederates. Thus, there were 17 real subjects in the distraction condition, and one of them was deleted in data analysis due to a correct guess of the hypotheses. The three sessions for the ingroup and outgroup conditions consisted of 17, 19, and 21 students, among them 7, 5, and 6
were confederates respectively. Thus, the number of real subjects were 10, 14, and 15 respectively for each session, and 5 of them were excluded in data analysis due to a correct guess of the hypotheses. Among the 34 real subjects in these three sessions, 18 were in the ingroup condition, and 16 were in the outgroup condition. Therefore, the total number of subjects for the basic condition is 15, 16 for the distraction condition, 18 for the ingroup condition, and 16 for the outgroup condition. The proportion of male and female students is: 8 to 7 in the basic condition, 10 to 6 in the distraction condition, 6 to 12 in the ingroup condition, and 7 to 9 in the outgroup condition. The purpose of using confederates was successfully achieved, i.e., the size of ingroup and outgroup was approximately equal in each session.

Four conditions were tested. In the basic condition, subjects were not asked to list any reasons and evaluated both the ingroup and outgroup. It was hypothesized that subjects would show the basic ingroup bias because of implicit thinking of reasons for own group's choice. In the ingroup condition, subjects were asked to list reasons only for ingroup members' choice of painting and to evaluate both the ingroup and outgroup. It was hypothesized that subjects would show the most ingroup bias because they would think most about the reasons for their own and other ingroup
members' choice and thus produce new persuasive arguments for the ingroup's choice. In the outgroup condition, subjects were asked to list reasons only for outgroup members' choice of painting and to evaluate both ingroup and outgroup. It was hypothesized that subjects would show no ingroup bias or reverse bias because they would mostly think about the reasons for outgroup members' choice and thus generate new persuasive arguments for the outgroup's choice. In the distraction condition, subjects were not asked to list reasons. Instead, they performed various activities, and evaluated both ingroup and outgroup. Such activities were provided to prevent them from thinking about the paintings and their choices. It was hypothesized that subjects would show no ingroup bias because they do not have an opportunity to think about the reasons for either groups' choice due to the distraction and thus cannot produced new arguments for or against the choice.

Procedures

The design of the study is similar to that of second pretest except some modifications such as the introduction of confederates. When recruiting subjects, the purpose of the study was explained as a study about seating arrangements and nonverbal cues. Two female experimenters
run each session. Each session lasted approximately 50 minutes. When subjects arrived, they received the consent form and one page questionnaire which includes questions about background information mostly related to social space. The purpose of these questions was to disguise the real intention of the study. There were two kinds of consent forms, one for subjects who got extra credit points and one for those who did not. Subjects completed the questionnaire while waiting for other subjects to show up. Subjects were asked not to talk to each other in order to prevent the effect of social interaction on ingroup bias. When all subjects arrived, the experimenter told them that the study was about seating arrangements and nonverbal cues and gave brief instructions. In these instructions, subjects were asked not talk throughout the study because it is about nonverbal cues. The experimenter said that the questionnaire would ask for a number of judgments, and asked subjects to read all the instructions in the questionnaire carefully. The experimenter showed an example of the questionnaire, explaining that it is stapled at the bottom so that subjects not to get ahead of each other and would move through the questionnaire simultaneously. Subjects were told to tear off the next page when asked. Then the brief explanation of the procedure was given as follows:
the experimenter will collect the background information sheets and will divide subjects into two groups. Instead of assigning them to a group, they will be divided according to their preference judgment. Then the experimenter will put the subjects into three different seating arrangements. Between each seating arrangement, there will be a transition period. The purpose of the transition period is to prevent the effects of one seating arrangement from contaminating the effects of the next seating arrangement. During each transition period subjects will have a "filler activity". The experimenter once again reminded the subjects not to talk.

After these instructions, the experimenters collected the signed consent forms and the background information sheets. Categorization of subjects into two groups was based on subjects' painting preferences. Slides of two pairs of Klee and Kandinsky paintings were projected alternately. Two paintings by each artist were selected ("A hotel" and "Sunset in the city" by Klee, and "White line" and "Composition VII" by Kandinsky). These paintings were selected because they seemed equally attractive. Subjects were asked to raise their hands indicating which artist they preferred, and then to take a seat on either side of the room.
Those who chose the Klee paintings were told to sit in rows facing the back of the room, and those who chose the Kandinsky paintings facing the front of the room. After this first seating arrangement was instituted, the experimenters handed out the questionnaires, asked subjects to fill out the first page which indicated subjects' painting preferences, and then move on to the second page titled, "first transition period". The experimenter told them to follow the instructions and that they had several minutes before moving on to the next page. During this period, subjects in the basic condition read the instruction to just relax and think about whatever they wanted. Subjects in the ingroup and outgroup conditions were instructed to list reasons for the ingroup and outgroup's choice of paintings respectively and to select among all the reasons they had listed the three most important reasons for the painting choice. In the distraction condition, subjects were instructed to solve a word jumble (unscramble words and solve a riddle). This and the other distraction activities used in this condition were selected because they seemed to attract subjects' attention and required their cognitive efforts.

After 3-5 minutes for the first transition period, the experimenter told subjects to move on to the next two pages
called "nonverbal cues from first seating arrangement". Subjects were given about two minutes to complete these pages which included 9 semantic differential scales for evaluating the ingroup and 9 different scales for evaluating the outgroup. In other words, subjects rated the ingroup on likable/dislikable, friendly/unfriendly, etc, but rated the outgroup on organized/disorganized, responsible/irresponsible, etc. Later in the session these scales were switched so that the ingroup was rated on organized/disorganized, etc., and the outgroup on likable/dislikable, etc. The total 18 pairs of scales were divided into two parts and presented alternately in an attempt to make subjects less suspicious about the purpose of the study.

After finishing this, subjects were asked to move their chairs for the second seating arrangement. The Klee group and the Kandinsky group lined up in single file on either side of the room facing each other in this arrangement. Then the experimenter told them to move on to the page titled "second transition period", and said they would have several minutes to complete this page. During this period, subjects in the basic condition were instructed to do the same thing as in the first transition period, relax and think about anything they wished. Those in the ingroup and outgroup conditions were asked to list new reasons for the
ingroup and outgroup's choice of paintings respectively, and to write a brief paragraph describing these paintings as vividly as they could. Those in the distraction condition were instructed to make paper sailor's hat and an origami bird by folding pieces of paper.

After completing this, subjects moved on to a page titled "allocation cues from second seating arrangement" which included matrices for allocating points to the Klee and Kandinsky groups. Subjects had to choose one of two kinds of reward allocations for each of the 8 Brewer and Silver items. Following this, subjects were asked to move their chairs for the third seating arrangement. In this arrangement, the Klee group members sat in rows facing forward and the Kandinsky group members sat in rows facing the back of the room. After moving their seats, the experimenter asked subjects to move to the next pages titled "third transition period". Once again, subjects were given several minutes. Subjects in the basic condition were again asked to just relax. Those in the ingroup and outgroup conditions were given a list of 36 possible reasons for choosing a painting (color, design, etc.) and were asked to select and rank the 10 most important reasons for choosing the paintings in question— the paintings they chose for the ingroup condition and paintings the other group chose for
the outgroup condition. Also, they were asked to write the most persuasive paragraph they could, trying to convince someone to choose those. Subjects in the distraction condition were asked to match "Far Side" cartoons with their correct captions and to make up their own captions for several other cartoons.

After this third transition period, the experimenter asked subjects to move on to the next page which was titled "nonverbal cues from third seating arrangement", and included 9 scales on which to evaluate the ingroup and outgroup for each group. The experimenter told them that at this point they can move at their own pace and tear off pages as they completed the questionnaire. After all subjects finished the questionnaire, the experimenters handed out a postexperimental questionnaire asking subjects to guess the hypotheses behind the study and to make comments. Subjects were told to insert this sheet into the experimental questionnaire booklet. Lastly, the experimenters collected the questionnaires, and reminded subjects not to talk about this study to any friends who are going to participate later. An example of a questionnaire is presented in the Appendix.
Dependent measures

Ingroup bias can be displayed in various ways. It can be affective, cognitive, or behavioral. Affective bias includes feelings of attraction toward ingroup members, and cognitive bias includes beliefs that members of the ingroup are similar to one another and members of the outgroup are dissimilar. Behavioral bias includes attempts to reward ingroup members at the expense of outgroup members. Dion indicates that ingroup bias exists at the behavioral level, evaluative level, and cognitive level, and that the interconnection among these three levels of bias needs to be studied. According to Herringer and Garza's study (1987), ingroup bias was displayed in terms of matrix choice but did not exist when measured by trait ratings. It seems that the results from the two measures may not be always corresponded each other. Therefore, measuring ingroup bias using both measures may be necessary and informative.

Evaluative measure-- scales A total of 18 pairs of semantic differential scales which represent traits of ingroup and outgroup members were used to measure ingroup bias at the evaluative level. Subjects rated ingroup members first and then outgroup members on a series of seven-point bipolar scales (9 different scales for each group) during the first "nonverbal cues" sequence. For the
second "nonverbal cues" period, the set of 9 scales were switched so that subjects evaluated the ingroup on the scales previously used to evaluate the outgroup, and vice versa. The 18 scales are: likable/dislikable, friendly/unfriendly, competent/incompetent, pleasant/unpleasant, intelligent/unintelligent, desirable as a friend/undesirable as a friend, attractive/unattractive, effective/ineffective, trustworthy/untrustworthy, organized/unorganized, responsible/irresponsible, confident/unconfident, generous/stingy, kind/unkind, talented/untalented, sophisticated/unsophisticated, cooperative/uncooperative, rational/irrational. Some of them represent sociometric traits, some are about abilities, and others measure personal characteristics of the members. Thus, the study includes various kinds of scales in order to measure a general evaluation of group members.

**Behavioral measure---matrices** Brewer and Silver's (1978) two-choice reward allocation matrices were used to measure the behavioral aspect of ingroup bias. These matrices have not been used often in ingroup bias research. They were designed by Brewer and Silver, and used by Lemyre and Smith (1985) and Herringer and Garza (1987). All these studies showed ingroup bias.
Most other researchers using matrices usually adopt Tajfel's multiple-choice matrices. However, there have been some criticisms of Tajfel's instrument. For instance, Brewer criticizes that Tajfel's matrices are not systematically varied to compare favoritism with all possible choice combinations. In particular, the choice alternatives that maximize the difference between ingroup and outgroup reward in favor of the ingroup members are usually confounded with alternatives that maximize absolute gain, i.e., the choice that maximizes the number of points provided to the ingroup member alone. Thus, the structure of the matrix task itself may have dictated a competitive strategy, in that a gain for the ingroup could be achieved only at a cost to the outgroup member. Furthermore, Brewer indicates that in Tajfel et al.'s experiment (1971) only one matrix format was used which maximized the ingroup member's outcome and did not also maximize relative gain, and in this one case the strategy was confounded with maximizing joint gain and maximizing the difference in favor of the outgroup member (Brewer, 1979:309-310). Thus, Brewer and Silver developed the two-choice matrices to alleviate this problem.

Others have criticized Tajfel's matrices. Bornstein et al. (1983) contend based on their data that Tajfel's measures are potentially misleading. They found that using
Tajfel's and their own revised measures lead to different results, and they indicated five possible problems with Tajfel's instrument. Their revised procedure is designed to measure 7 between-group orientations instead of 4. It seems that Tajfel's matrix design is more complicated and requires subjects more time to complete in comparison with two-choice matrices. Thus, this study used two-choice matrices (Table 1). The choice matrices were presented in a scrambled order.

These matrices test the generality of a preference for outcomes which maximize the competitive advantage of the ingroup under forced-choice conditions. The matrices represent all possible pairings of the four alternative distribution rules of interest. For each pair of two-choice matrices (e.g., matrix A1 and A2), the distribution rules that are confounded in the first matrix of the pair are opposed in the second matrix. Thus, assuming consistency of choice preferences across matrices, the pattern of choices for the two matrices in each pair, when combined, discriminates perfectly among the four distribution rules. This is indicated by the scoring key associated with each matrix pair in Table 1. That is, the scoring key given in the table describes how the combination of either the 0 or 1 choice for the first matrix and either the 0 or 1 choice for
TABLE 1. Two-choice reward allocation matrices (Brewer and Silver, 1978)

<table>
<thead>
<tr>
<th>MATRIX PAIRS</th>
<th>CHOICE</th>
<th>SCORING KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matrix A1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>payoff to ingrouper</td>
<td>0 1</td>
<td>0.0: equality</td>
</tr>
<tr>
<td>payoff to outgrouper</td>
<td>7 8</td>
<td>0.1: joint gain</td>
</tr>
<tr>
<td>Matrix A2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>payoff to ingrouper</td>
<td>0 1</td>
<td>1.0: relative gain</td>
</tr>
<tr>
<td>payoff to outgrouper</td>
<td>7 8</td>
<td>1.1: own gain</td>
</tr>
<tr>
<td>Matrix B1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>payoff to ingrouper</td>
<td>0 1</td>
<td>0.0: joint gain</td>
</tr>
<tr>
<td>payoff to outgrouper</td>
<td>6 7</td>
<td>0.1: equality</td>
</tr>
<tr>
<td>Matrix B2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>payoff to ingrouper</td>
<td>0 1</td>
<td>1.0: own gain</td>
</tr>
<tr>
<td>payoff to outgrouper</td>
<td>6 5</td>
<td>1.1: relative gain</td>
</tr>
<tr>
<td>Matrix C1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>payoff to ingrouper</td>
<td>0 1</td>
<td>0.0: equality</td>
</tr>
<tr>
<td>payoff to outgrouper</td>
<td>6 7</td>
<td>0.1: relative gain</td>
</tr>
<tr>
<td>Matrix C2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>payoff to ingrouper</td>
<td>0 1</td>
<td>1.0: joint gain</td>
</tr>
<tr>
<td>payoff to outgrouper</td>
<td>6 7</td>
<td>1.1: own gain</td>
</tr>
<tr>
<td>Matrix D1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>payoff to ingrouper</td>
<td>0 1</td>
<td>0.0: relative gain</td>
</tr>
<tr>
<td>payoff to outgrouper</td>
<td>7 9</td>
<td>0.1: equality</td>
</tr>
<tr>
<td>Matrix D2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>payoff to ingrouper</td>
<td>0 1</td>
<td>1.0: own gain</td>
</tr>
<tr>
<td>payoff to outgrouper</td>
<td>7 6</td>
<td>1.1: joint gain</td>
</tr>
</tbody>
</table>

the second matrix provides evidence for the four allocation strategies. Brewer and Silver label the four allocation strategies as "own gain", "relative gain", "equality", and
"joint gain" which correspond directly to Tajfel's strategies called "maximum ingroup profit", "maximum difference", "fairness", and "maximum joint profit". In their study, Brewer and Silver report that the majority of the subjects tended to choose relative gain, thus consistent with previous evidence for maximum difference choice.

In the present study, subjects were told that the experimenter would conduct a similar experiment next semester, except for the fact that it would involve the differential allocation of points to participants. Without knowing the particulars of this research, subjects were asked to indicate how they thought the experimenter should allocate points to those who chose Klee versus Kandinsky paintings by choosing one of two different allocations for each of the 8 matrix pairs. The study asked subjects to allocate points to future participants rather than some immediate rewards such as money or extra credit points in order to eliminate the influence of self-interest on their choices.

Data Analysis Methods

The result of semantic differential scale responses will be analyzed using matched pairs analysis. Matched pairs analysis is appropriate for analyzing the results because the scales consist of response pairs, one for
ingroup and one for outgroup evaluation. The outgroup evaluation is subtracted from the ingroup evaluation for each dimension (e.g., friendly/unfriendly), these are summed across all dimensions, and this sum represents the subject's relative evaluation of the ingroup versus the outgroup. Positive values indicate higher evaluation of the ingroup, negative values, higher evaluation of the outgroup. The mean of these values in a condition should be zero if there is no evaluation bias. The evaluation scales will then be analyzed using t-tests and the nonparametric Wilcoxon signed-rank test (see Bickel and Doksum, 1977). T-tests and Wilcoxon test will be used to test whether there is a significant ingroup bias in each condition. A nonparametric technique is adopted because the number of subjects in each condition is rather small. In such cases, assuming a normal distribution may not be reasonable. Tajfel and his colleagues (Tajfel et al., 1971; Billig and Tajfel, 1973; Tajfel and Billig, 1974) sometimes used Wilcoxon test to analyze their experimental data. When Brown et al. (1980) responded to Aschenbrenner and Schaefer's criticism about minimal group studies, they pointed out that the basic findings of the studies requires no parametric assumptions. Also, an analysis of variance for the total subjects pool will be presented.
The result of matrices will be analyzed based on the frequency with which subjects chose the four distribution rules. In addition, a "test of composition" randomization test developed by Edgington (see Edgington, 1987) will be used to analyze these data. Randomization test is a permutation test based on randomization. It is a test for which the significance of experimental results is determined by permuting the data repeatedly to compute test statistics. A "test of differences in composition" which will be used to analyze the result of matrices concerns differences in composition of compounds contained within individual experimental units. It calculates the p-value for a test of differences in composition. The p-value is defined as the number of test statistic values that are as large as, or larger than, the obtained test statistic value over the number of test statistic values calculated by the program. The test statistic is the sum of all T**2/n where T is the total for each cell in a group by variables matrix and n is the number of subjects for each cell. This test statistic is an equivalent test statistic to F for one-way ANOVA, for determining significance by data permutation.
CHAPTER V. FINDINGS

Evaluative Measure

The results of semantic differential scales by matched pairs analysis are presented in Table 2.

TABLE 2. Ingroup bias in scales

<table>
<thead>
<tr>
<th>condition</th>
<th>basic</th>
<th>ingroup</th>
<th>outgroup</th>
<th>distraction</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean</td>
<td>5.73**</td>
<td>11.94**</td>
<td>2.38</td>
<td>4.81</td>
<td>6.40</td>
</tr>
<tr>
<td>s.e.</td>
<td>1.93</td>
<td>3.32</td>
<td>1.89</td>
<td>2.63</td>
<td>1.35</td>
</tr>
<tr>
<td>n</td>
<td>15</td>
<td>18</td>
<td>16</td>
<td>16</td>
<td>65</td>
</tr>
</tbody>
</table>

**Significant at the .01 level (two-tailed).

As predicted, ingroup bias was highest in the ingroup condition, next highest in the basic condition, followed by the distraction condition, and the outgroup condition. To see whether those means are significantly different from 0, t-tests were performed. According to t-tests, significant ingroup bias occurred in the basic condition (t=2.98; p<0.01). The ingroup condition also displayed significant ingroup bias (t=3.60; p<0.01). However, both the outgroup and distraction conditions did not show the bias (t=1.25, p=0.23 and t=1.83, p<0.09 respectively, two-tailed). The
distraction condition showed ingroup bias at a marginally significant level. Thus, as predicted, subjects in ingroup and basic conditions showed considerable ingroup bias while those in the outgroup condition did not, and those in the distraction condition did so, but moderately. Overall, subjects showed ingroup bias across conditions (t=4.76; p< 0.0001). The result of Wilcoxon signed-rank test is almost the same as the result of t-tests (p<0.02, p<0.01, p=0.33, p=0.21, respectively) except for the fact in this case the distraction condition does not even approach a marginally significant level.

Table 3 shows that ingroup bias differs depending upon various conditions, and those conditions explain about 11.4% of the variance in ingroup bias.

**TABLE 3. General linear model**

<table>
<thead>
<tr>
<th>source</th>
<th>df</th>
<th>F</th>
<th>PR&gt; F</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>condition</td>
<td>3</td>
<td>2.62</td>
<td>0.059</td>
<td>0.114</td>
</tr>
<tr>
<td>error</td>
<td>61</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.total</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Therefore, as predicted, whether subjects list reasons for and think about either their own group's choice or the other group's choice makes a difference in ingroup bias.
The means between conditions were compared to examine the differences in ingroup bias among conditions. The means of the basic condition and distraction condition were not significantly different ($F=0.06; p=0.81$). The difference between the basic condition and the ingroup condition was significant at a marginal level ($F=2.89; p<0.1$), and the difference between the basic and outgroup condition was not significantly different ($F=0.80; p=0.38$). There was a marginally significant difference between the ingroup and the distraction condition ($F=3.94; p<0.06$), and a significant difference between the ingroup and the outgroup ($F=7.09; p<0.01$). The difference between the outgroup and the distraction condition was not significant ($F=0.43; p=0.51$). Therefore, the ingroup and outgroup conditions were significantly different in ingroup bias, and also there were differences between the ingroup and distraction conditions, and between the ingroup and basic conditions at the marginal levels. These findings fit to the predictions. However, there were no significant differences in ingroup bias between the basic and distraction conditions, and between the basic and outgroup conditions, which seems contrary to the predictions. It may be due to big standard error values.
In terms of sex, the mean was 7.77 for males and 5.15 for female subjects. These two means were significantly different from zero (t=3.94; p<0.001 and t=2.80; p<0.01 respectively), but were not significantly different from each other according to t-tests (t=-0.97; p=0.33). Thus, there was no difference in ingroup bias by sex. It is necessary to check whether ingroup bias differs according to painting preferences. The mean for the Klee group (n=36) was 5.78, and for the Kandinsky group (n=29) was 7.17. These two means were not significantly different (t=-0.51; p=0.61), which shows that there is no difference in the amount of ingroup bias by art preference. In addition, there was no interaction effect between conditions and art preference.

Because the hypothesis predicted no or reverse bias in the outgroup condition, no bias in the distraction condition, moderate ingroup bias in the basic condition, and the most ingroup bias in the ingroup condition, this ordering of ingroup bias was tested using contrast statements and an F-test. According to the result, the predicted ordering of ingroup, basic, distraction, and outgroup conditions was supported (F=6.74; p<0.02). The alternative ordering of ingroup>basic=distraction>outgroup was also supported (F=7.09; p<0.01), however.
The means of total 18 scales for ingroup and outgroup evaluations were calculated (Table 4).

**TABLE 4. Ingroup and outgroup evaluation scale means**

<table>
<thead>
<tr>
<th>condition</th>
<th>basic</th>
<th>ingroup</th>
<th>outgroup</th>
<th>distraction</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>inmean</td>
<td>5.14</td>
<td>5.03</td>
<td>4.91</td>
<td>5.02</td>
<td>5.02</td>
</tr>
<tr>
<td>s.e.</td>
<td>0.12</td>
<td>0.15</td>
<td>0.20</td>
<td>0.16</td>
<td>0.08</td>
</tr>
<tr>
<td>outmean</td>
<td>4.82</td>
<td>4.37</td>
<td>4.77</td>
<td>4.74</td>
<td>4.66</td>
</tr>
<tr>
<td>s.e.</td>
<td>0.15</td>
<td>0.13</td>
<td>0.23</td>
<td>0.22</td>
<td>0.09</td>
</tr>
</tbody>
</table>

According to Table 4, the basic condition shows the most favorable evaluation of the ingroup, and also the highest evaluation of the outgroup. Thus, the evaluation of the ingroup in the ingroup condition was not the most favorable, and the evaluation of the outgroup in the outgroup condition was not the highest, either. However, differences between both ingroup and outgroup evaluations across all the conditions were quite small.

**Behavioral Measure—Matrices**

The results of reward allocation matrices are shown in Table 5.
TABLE 5. Frequency of four choice rules by condition

<table>
<thead>
<tr>
<th>condition</th>
<th>basic</th>
<th>ingroup</th>
<th>outgroup</th>
<th>distraction</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ(F) (%)</td>
<td>26 (43.3)</td>
<td>33 (45.8)</td>
<td>19 (32.2)</td>
<td>15 (23.4)</td>
<td>93 (36.47)</td>
</tr>
<tr>
<td>RG(MD) (%)</td>
<td>29 (48.3)</td>
<td>27 (37.5)</td>
<td>36 (61.0)</td>
<td>37 (57.8)</td>
<td>129 (50.59)</td>
</tr>
<tr>
<td>OG(MIP) (%)</td>
<td>2 (3.3)</td>
<td>5 (6.9)</td>
<td>0 (0.0)</td>
<td>5 (7.8)</td>
<td>12 (4.71)</td>
</tr>
<tr>
<td>JG(MJP) (%)</td>
<td>3 (5.0)</td>
<td>7 (9.7)</td>
<td>4 (6.8)</td>
<td>7 (10.9)</td>
<td>21 (8.24)</td>
</tr>
<tr>
<td>total</td>
<td>60</td>
<td>72</td>
<td>59</td>
<td>64</td>
<td>255</td>
</tr>
</tbody>
</table>

*EQ: equality; F: fairness; RG: relative gain; MD: maximum difference; OG: own gain; MIP: maximum ingroup profit; JG: joint gain; MJP: maximum joint profit.

As Table 5 shows, subjects generally chose the relative gain distribution rule the most frequently, followed by the equality rule. Thus, overall, subjects showed ingroup bias when distributing points to ingroup and outgroup members, i.e., they tended to make the difference between points given to ingroup and those given to outgroup as big as possible. The tendency for equal distribution was also dominant, which corresponds to the results of other research. Subjects chose the other two rules in only about 13% of their total choices. Thus, it is shown again that
own gain and joint gain are not popular choices. The proportion of own gain was even smaller than that of joint gain, which suggests that subjects do not want to maximize own gain but rather strongly prefer the relative advantage compared to the outgroup. Sacrificing own absolute profit for the relative gain has been the consistent finding in most studies.

In contrast to the prediction, those in the basic condition and ingroup condition chose equality and relative gain almost equally, and those in the outgroup and distraction conditions showed a stronger tendency to select relative gain, i.e., stronger ingroup bias. Such a result was unexpected and difficult to explain. Using the randomization test Edgington calls a "composition test", there seems to be no overall difference in strategies used across conditions (sum of all $T^2/n=26.00$, $p=0.31$). While there appears to be some interesting differences between use of equality and relative gain, the pattern of results is directly opposite to predictions, since you would expect more use of relative gain in the basic and ingroup conditions and more use of equality in the remaining conditions.
Other Findings

Almost all subjects had never seen the four paintings before. One of the predictions in this study was that as subjects list more reasons for their own group's choice, their evaluation of the ingroup would become more favorable, and that as they list more reasons for the outgroup's choice, their evaluation of the outgroup would be more favorable. However, the result did not support these predictions, i.e., there was no significant relationship between the number of reasons listed and evaluation of either the ingroup or the outgroup.

Subjects were asked at the end of the questionnaire how much they thought about reasons for the ingroup's and outgroup's choice. Responses to these questions were examined in order to check whether asking subjects to list reasons for the groups' choices really made them think more about the choices. In the basic condition, the mean response for thinking about the ingroup's choice and for outgroup's choice was 3.07 and 3.07, respectively (on a scale from 1 to 5, with 1 meaning "did not think about it at all" and 5 "thought about it very much"). The means were 3.28 and 2.50 in the ingroup condition, 3.50 and 3.63 in the outgroup condition, and 2.88 and 2.56 in the distraction condition. Thus, subjects in the distraction condition
generally thought the least about those reasons, which seems to show that the distraction manipulation was somewhat successful. Those in the outgroup condition thought the most about the outgroup's reasons for their choice, and those in the ingroup condition thought more about the ingroup's reasons than about the outgroup's reasons for choice, which seems to show that the manipulations in these conditions worked.

As discussed earlier in this chapter, the distraction condition showed ingroup bias according to t-test even though it was at a marginally significant level. This seems contrary to the hypothesis. One possible reason may be the manipulation of distraction was not strong enough to distract subjects. Thus, in order to see whether those subjects who showed more ingroup bias were less distracted, subjects in this condition were divided into two groups, those who showed more bias than the average and those who showed less bias than the average. The former group reported thinking more about reasons for both ingroup and outgroup's choices than the latter (3.33 for ingroup and 3.33 for outgroup in the former group, and 2.60 and 2.10, respectively, in the latter). The difference between the amount of reasons thought about for the ingroup's choice was not significantly different between those high and low in
ingroup bias ($t=1.34; p=0.20$), but the difference between the two groups in terms of outgroup's reasons was significant ($t=2.37; p<0.03$). When combined, the amount of reasons thought about for both groups' choices is 6.67 for the high bias group and 4.70 for the low bias group, which is significantly different ($t=2.21; p<0.05$). Thus, those who showed more ingroup bias seemed to think more about reasons than those who displayed less bias, which means that more ingroup bias may occur because subjects were less distracted and thus could think more about the reasons and generate arguments.
CHAPTER VI. CONCLUSIONS AND DISCUSSION

Summary

The study used unaquainted subjects with minimal social interaction between or within groups. Overall, the results show that even under such a situation the mere categorization of subjects into an ingroup and outgroup, based on a trivial criterion, still led to ingroup bias. While subjects were randomly assigned to condition, classification of individuals into groups in this study was not random because it is based on their actual painting preferences. However, this similarity is quite trivial, and thus mere categorization rather than a similarity factor can be regarded as the major basis for inducing ingroup bias. In general, ingroup bias was displayed at both the evaluative and behavioral levels across conditions.

The major finding is that ingroup bias differed depending upon different conditions, i.e., depending upon whether subjects had a chance to think again about the choice and to list reasons for the choice made either by the ingroup or the outgroup. Subjects in the basic and ingroup conditions showed significant ingroup bias, i.e., they evaluated ingroup members more favorably than outgroup members. In contrast, those those in the outgroup and
distraction conditions did not display ingroup bias, i.e., there was no significant difference between their evaluation of ingroup and outgroup members. Therefore, the study supports the hypothesis that when subjects implicitly or explicitly think about reasons and/or argue for their own choice, they show ingroup bias. When they do not have an opportunity to think about reasons for their own and of the other group's choices and thus do not argue for either choice, they do not display ingroup bias. It also shows that when subjects argue for the outgroup's choice, they display no ingroup bias, even though they do not necessarily show reverse bias. Although the main test did not demonstrate reverse bias in the outgroup condition, subjects showed reverse bias in pretest 1 although it was not statistically significant. Even though both the basic and ingroup conditions showed significant ingroup bias, subjects in the ingroup condition displayed more ingroup bias than those in the basic condition and this difference was marginally significant. Thus, the first and second hypotheses were supported. The third and fourth hypotheses were also supported, i.e., both the outgroup and distraction conditions did not display ingroup bias. Ingroup bias between these two conditions was not significantly different from each other. There was a significant difference in
ingroup bias between the ingroup and outgroup conditions, and between the ingroup and distraction conditions, while there was no significant difference between the basic and outgroup conditions, or between the basic and distraction conditions. When comparing the four evaluation means (i.e., ingroup evaluation minus outgroup evaluation) across all conditions, the ingroup condition showed the highest mean, followed by the basic condition, distraction condition, and outgroup condition, which corresponds to the hypothesized ordering. However, the ordering of ingroup > basic = distraction > outgroup was also supported according to contrast statement. Thus, it is not certain whether the amount of ingroup bias between the basic and distraction conditions is the same or not. One possible reason can be due to a weak manipulation of distracting activities. The result did not show the evidence to support the hypothesis that there will be significant relationship between the number of reasons produced and the amount of ingroup bias.

Overall, subjects selected "relative gain" and "equality" rules when allocating points (about 87% of total choices). Only about 13% of all choices were "own gain" or "joint gain" rules. More than half of the subjects (about 51%) preferred the relative gain strategy, which demonstrates ingroup bias. The distribution of the four
choice rules by condition was not in accord with predictions. On the contrary, the results showed a rather opposite trend. Subjects in the basic and ingroup conditions selected both relative gain and equality rules almost equally, whilst those in the outgroup and distraction conditions chose the relative gain rule more often than the equality rule (about twice as often as the equality rule). These findings do not correspond to the results obtained from the evaluative measures. Therefore, the study demonstrates rather contradictory results. One set of results suggests that ingroup bias is related to thinking and arguing about the ingroup's position, and the other set suggests it is related to the absence of any thinking and arguing about the ingroup's position.

Discussion

This study demonstrates several problems in methodology. One of the most significant problems would be the use of different measures for ingroup bias. As the results obtained from evaluative and behavioral measures showed, these two measurements display rather contradictory findings. Some research on ingroup bias has used only evaluation scales while some others have used allocation matrices. There exists a problem concerning what kind of
measurement is more accurate or valid. When the results are different, it is difficult to interpret the findings. The study raises a question of whether ingroup bias at the evaluative level and at behavioral level have different characteristics or connotations.

Few studies have used both kinds of measurement. The reason for that may be because of this problem. For instance, Brewer and Silver (1978) intended to compare the results from allocation matrices with that from traits scales, and found ingroup bias in reward allocation matrices but only in three out of seven traits scales. The correlation between total relative gain scores and differentiation on evaluative ratings was only 0.14.

Hence, the contradictory findings of this study pose an important methodological problem which should be solved. It is necessary to conduct more research comparing outcomes from different measures of ingroup bias. Research will be needed in order to clarify whether the different aspects of ingroup bias (e.g., cognitive, evaluative, behavioral) can be considered as the same kind of bias.

There are also some problems in the matrices measurement. It is difficult to make subjects allocate rewards without involving any self-interest. When a researcher tries to explain the reward allocation task, it seems hard to justify allocating rewards. A more important
problem is that most matrices methods have some drawbacks. The paper already indicated some of the problems in Tajfel's multiple-choice matrices. Some critiques point out data analysis problems and some others indicate problems in matrix allocation and combination (e.g., problems in distinguishing between strategies). Although this study used two-choice matrices due to such problems, two-choice matrices have also been criticized. Of particular concern is the problem of "alternation", which means that a subject may subvert the purpose of the forced choice measurement scale by, for example, taking turns in overrewarding the ingroup and outgroup so that both receive approximately equal rewards over the entire scale. Bornstein et al. (1983) contend that while Brewer and Silver's procedure appears to avoid the alternation problem since the scoring key is based on a variation in response patterns within a given two-choice matrix, this is not necessarily the case. For example, in matrix A, according to the scoring key the "0.0" response in A1 and A2 signifies equality, and this is true within A1 and A2. Similarly, if the subject selects "1.1", according to the scoring key this signifies own gain, and this is true within A1 and A2. However, if the subjects think in terms of alternation, 16 points are awarded to both groups and there is more equality than in the "0.0" pattern.
Consequently, Bernstein et al. argue that alternation produces a confound between the two rules. Also, they indicate that a further problem is that Brewer and Silver's joint gain strategy is actually maximum joint gain in favor of the other group and not maximum joint gain for own group. Thus, they designed their own procedure consisting of 7 orientations, rather than 4 rules, including "maximum other gain", "maximum relative other gain", and "maximum joint other gain". As we can see in the various types of matrices researchers have invented, it seems difficult to make matrices which include all possible alternatives and combinations of rules. We may need a more careful, articulated matrix design which is easy for subjects to understand. The unpredicted results from matrices in this study may be partially due to the problems involved in two-choice matrices.

Another problem faced in this study is the manipulation of the distraction condition. As the results show, there is no significant difference in ingroup bias between the basic and distraction conditions, which does not support the hypotheses. Such a finding may reflect a failure in manipulating distraction. It seems difficult to distract subjects enough to prevent them from thinking about the division of groups and the choice of paintings. Although
the researcher tried to introduce strong distraction activities, they probably were not powerful enough. When distracting subjects, researchers may need to use activities which require and can elicit much cognitive effort on the part of subjects. More effective manipulation seems to be needed.

It has been found to be difficult to make a cover story which can deceive subjects and disguise the real purpose of the study, especially because the evaluation part in the questionnaire is quite conspicuous. Two different cover stories were used in this research: a person perception study based on music and painting choice (first pretest) and a study of nonverbal cues based on seating arrangements (second pretest and main experiment). Neither were entirely satisfactory. The former was too vaguely defined to be very convincing and the latter introduced a cooperative activity (moving chairs together) which may have minimized condition differences. Furthermore, subjects were allowed to actually pick their favorite paintings, rather than being randomly assigned to the Klee and Kandinsky groups (as is done in other research), in order to eliminate this element of deception and possible source of suspicion. Data analysis showed no overall significant differences between the Klee and Kandinsky groups, but this introduced an uncontrolled source of variation into the experiment. Many previous
studies do not report how many subjects became suspicious about the purpose of the experiment. Those subjects who seemed to recognize the purpose were excluded in this study. Designing a cover story which sounds plausible will be important in this kind of study in order to minimize the effects of demand characteristics in the experimental situation.

The sample size of each condition was not big, and this is probably the reason for having high standard error values which contribute to insignificant results. If the study had more subjects, it might be able to show better results. The ingroup and outgroup were divided based on art preferences, which may include some similarity factor even if it is trivial. In future experiments, clear separation of these two factors will be helpful to eliminate the current problem of confounding categorization and similarity factors.

There are some plausible reasons for the finding that subjects in the outgroup condition did not display reverse bias. One of the most plausible reasons would be because subjects cooperated with other members of their group by moving their chairs together and such cooperation could cause some kind of group feeling. This seems especially plausible based on the fact that in pretest 1 which did not involve seating arrangements, subjects in this condition
showed lower evaluation of ingroup members than of outgroup members, even though the difference evaluation was not statistically significant. Thus, it may be possible to get better results using a different design.

Despite these methodological issues, the study has important theoretical significance. It generally supports the hypotheses drawn from persuasive arguments theory. According to social identity theory, there should be no difference in ingroup bias across the different conditions, i.e., whether subjects list reasons or not should not make any difference in the bias. If social identity theory is valid, then all four conditions should show significant ingroup bias because categorization of groups exists in all conditions and consequently subjects should seek for relatively higher status through advantageous comparison with the other group in all four conditions. However, the results of the study show that only the basic and ingroup conditions produced ingroup bias. Even with categorization into an ingroup and outgroup, the outgroup and distraction conditions did not demonstrate the bias. Therefore, whether subjects listed reasons for the choice of paintings and produced new arguments made a difference in ingroup bias, which supports persuasive arguments theory.
The cognitive approach proposed here may be an alternative to social identity theory, to a motivational approach. The question of whether this new approach can replace social identity theory or can be a supplement to social identity theory seems to be raised. Evidence from the basic condition of this research suggests that social identity theory may be also valid. The basic condition showed significant ingroup bias even though subjects reported thinking about reasons for the outgroup's choice as much as for the ingroup's choice. This suggests that assuming subjects may implicitly think more about their own choice when given no instruction to do so is not correct. There is no evidence to show that subjects in the basic condition thought more about the ingroup's reasons, which does not support the assumption behind this condition. Therefore, further research to directly comparing the two theories is needed. The study presented here is only a first attempt to synthesize persuasive arguments theory into ingroup bias research. This paper is only a preliminary study. Thus, we cannot draw a decisive conclusion only based on this study. Considering the generally positive results, however, replication and/or extension of this study is indicated. Further investigations will contribute to knowledge in this area.
As the paper discussed earlier, the persuasive arguments theory of ingroup bias is a cognitive approach. The role of cognitive processes has been widely recognized in many social psychological studies. One example would be the study of stereotypes. Linville (1982) and Linville and Jones (1980) contend that more studies are needed of the cognitive processes underlying evaluative biases among groups. Linville's study (1982) supports the argument that a cognitive mechanism influences intergroup evaluation. She points out that in a typical ingroup favoritism paradigm, subjects are provided with little information about the target beyond the ingroup/outgroup status. Thus, they have no prior knowledge about the outgroups. With such little information apart from group membership, per se, on which to base evaluations, a group label may simply cue a bias associated with group membership. With richer information about a target person and hence a better basis for processing further information about the target, evaluations may not primarily depend upon group membership, per se. She contends that social evaluation is a result of a process that is at least partially determined by the way in which our information about social domains is structurally represented. The evaluative aspect of intergroup relations is tied to cognitive structure, and specifically to the lack
of complex interpretive mechanisms for processing information about outgroup members (Linville, 1982:198). The emphasis on information processing is typical of a cognitive approach. Persuasive arguments theory shares the same theoretical background with this kind of reasoning. Linville's thesis illuminates the significance of the cognitive approach proposed in this paper.

As the paper indicated in its introduction, there exists a lack of theory on the issue of ingroup bias. This paper is an attempt to propose a new and better theory to explain the ingroup bias phenomenon. If this new theory is proven to have strong explanatory power through further research, it will open a new direction in this area. The study of ingroup bias constitutes an important part of group studies. From its beginning, social psychologists have recognized and investigated this topic. Sumner's study of ethnocentrism and Allport's study of prejudice reflect a long history of research. Furthermore, ingroup bias has more than theoretical importance since the phenomenon is prevalent in our everyday lives. We oftentimes are confronted with this problem when we interact with other people. Considering such prevalence of the phenomenon, more objective understanding of the phenomenon would be important not only for academic purpose but also for real life situations.
Group study has dwindled since the 1950s because of the increased emphasis on interpersonal relationships or individual processes in social psychology. However, group study is essential for understanding the relationship between the individual and larger society, because the social group is a mediating unit between the two. This paper calls for more research on groups and ingroup bias. There remain many unsolved problems or issues in this area. As the paper presented in its review of literature, it is difficult to synthesize and draw generalizations from the findings of the studies dealing with this topic. Also, there exist new, interesting areas of study, such as power relations between groups suggested by Ng, or bias of minority groups presented by Moscovici. Many unsolved problems and/or intriguing new issues will be stimulating academic curiosity and have potential to inspire interesting investigations. Continued research based on persuasive arguments theory is definitely needed to obtain more empirical support for the theory.
REFERENCES

Allen, Vernon L. and David A. Wilder

Allen, Vernon L. and David A. Wilder

Allport, Gordon W.

Amir, Yehuda

Arcuri, Luciano

Aschenbrenner, K. M. and Ralf Schaefer

Austin, William G. and Stephen Worchel (eds.)

Bass, Bernard M. and George Dunteman
1963 "Biases in the evaluation of one's own groups, its allies, and opponents." Journal of Conflict Resolution 7:16-20.

Bickel, Peter and Kjell Doksum

Billig, Michael
Billig, Michael
1976  Social Psychology and Intergroup Relations.

Billig, Michael
1985  "Prejudice, categorization, and particularization:
     From a perceptual to a rhetorical approach."

Billig, Michael and Henri Tajfel
1973  "Social categorization and similarity in
     intergroup behavior." European Journal of Social

Blake, Robert R. and Jane S. Mouton
1961  "Reactions to intergroup competition under win-

Blake, Robert R. and Jane S. Mouton
1962  "Overevaluation of own group's product in
     intergroup competition." Journal of Abnormal and
     Social Psychology 64:237-238.

Blalock, Hubert M.

Blanchard, Fletcher, Leonard Adelman, and Stuart Cook
1973  "Effect of group success and failure upon
     interpersonal attraction in cooperating
     interracial groups." Journal of Personality and
     Social Psychology 31:1020-1030.

Bornewasser, Manfred and Johannes Bober
1987  "Individual, social group, and intergroup
     behavior: Some conceptual remarks on the social
     identity theory." European Journal of Social
     Psychology 17:267-276.

Bornstein, G., J. Wittenbraker, K. Harring and J. Thibaut
1983  "On the measurement of social orientations in the
     minimal group paradigm." European Journal of

Branthwaite, Alan, Susan Doyle, and Nicholas Lightbown
1979  "The balance between fairness and discrimination."
Brewer, Marilynn B.

Brewer, Marilynn B.

Brewer, M. B. and Madelyn Silver

Brown, Rupert J. and John C. Turner

Brown, R., H. Tajfel and J. Turner

Burnstein, Eugene and Amiram Vinokur
1975 "What a person thinks upon learning he has chosen differently from others: Nice evidence for the persuasive arguments explanation of choice shifts." Journal of Experimental Social Psychology 11:412-426.

Burnstein, Eugene, A. Vinokur, and Y. Trope

Byrne, Donn and Don Nelson
Byrne, Donn and Don Nelson

Byrne, Donn and Terry Wong

Byrne, D., O. London, and W. Griffitt

Byrne, Donn, Gerald Clore, and George Smeaton

Campbell, Donald T.

Cartwright, Dorwin and Alvin Zander (eds.)

Clore, Gerald L. and Barbara Baldridge

Clore, Gerald L. and Barbara Baldridge

Commins, Barry and John Lockwood

Cotton, John L. and Robert S. Baron
Darley, John M. and Ellen Berscheid  
1967 "Increased liking as a result of the anticipation of personal contact." Human Relations 20:29-40.

Deschamps, Jean-Claude  

Deschamps, J. C. and W. Doise  

Deutsch, Morton  

Diab, Lutfy N.  
1970 "A study of intragroup and intergroup relations among experimentally produced small groups." Genetic Psychology Monographs 82:49-82.

Dion, Kenneth L.  

Dion, Kenneth L.  

Dion, Kenneth L.  

Doise, W. and A. Sinclair  

Doise, W., J. C. Deschamps, and G. Meyer  


Hamilton, D. L.

Hamilton, D. L. (ed.)

Hammond, Leo K. and Morton Goldman

Hastorf, Albert H. and Alice M. Isen (eds.)

Heider, Fritz

Hensley, Virginia and Shelly Duval

Herringer, Lawrence and Raymond Garza

Hewstone, Miles and J. Jaspars

Hewstone, Miles, Frank Fincham, and Jos Jaspars
Hinkle, S. and J. Schopler

Hinkle, Steve and John Schopler

Hinsz, Verlin B. and James H. Davis

Hollander, Myles and Douglas Wolfe

Horwitz, Murray and Jacob M. Rabbie

Howard, John W. and Myron Rothbart

Janssens, Ludo and Joseph Nuttin

Jones, Edward, George Wood, and George Quattrone

Kahn, Arnold and Allen Ryen
Kahneman, Daniel and Amos Tversky

Kennedy, James and Walter G. Stephan

Lamm, Helmut and David G. Myers

Laughlin, Patrick R. and P.C. Earley

Lemaine, G., J. Kastersztein, and B. Personnaz

Lemyre, Louise and Philip M. Smith

Linville, Patricia

Linville, P. and E. Jones

Locksley, Anne, Vilma Ortiz, and Christine Hepburn

Lott, Albert J. and Bernice E. Lott
1965 "Group cohesiveness as interpersonal attraction." Psychological Bulletin 64:259-309.
Marques, J. M., V. Yzerbyt, and J. Leyens

Moreland, Richard L.

Moscovici, S. and G. Paicheler

Ng, Sik Hung

Oakes, P. J. and J. C. Turner

Park, Bernadette and Myron Rothbart

Pruitt, Dean G.

Pruitt, Dean G.

Rabbie, J. M. and Murray Horwitz
Rabbie, J. M. and J. de Brey

Rabbie, Jacob M. and Karel Huygen

Rabbie, Jacob M. and Gerard Wilkens

Rabbie, J., F. Benoist, H. Oosterbaan, and L. Visser

Rokeach, Milton

Rosenblatt, R.

Ryen, Allen H. and Arnold Kahn

Schachter, Stanley

Schroder, H., M. Driver, and S. Streufert

Sherif, Muzaffer
Sherif, M. and Carolyn Sherif

Sherif, M., O. Harvey, E. White, W. Wood, and C. Sherif

Steiner, Ivan D.

Stephen, Walter G.

Sumner, William G.

Tajfel, Henri

Tajfel, Henri

Tajfel, Henri

Tajfel, Henri

Tajfel, Henri
Tajfel, Henri (ed.)
1982 Social Identity and Intergroup Relations.
Cambridge: Cambridge University Press.

Tajfel, H. and Michael Billig

Tajfel, H. and John C. Turner
Monterey, California: Brooks/Cole.

Tajfel, H. and A. L. Wilkes

Tajfel, H, M. G. Billig, R. P. Bundy, and C. Flament

Taylor, Shelley E.
Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Thibaut, John W. and Harold H. Kelley

Turner, John C.

Turner, John C.

Turner, John C.
Turner, John C.

Turner, John C.

Turner, John C.

Turner, J. C. and R. J. Brown

Turner, John C. and Howard Giles (eds.)

Turner, John C. and Howard Giles

Turner, J. C., R. J. Brown, and H. Tajfel

Vaughan, G.

Wetherell, Margaret
Wilder, David A.  

Wilder, David A.  

Wilder, David A.  

Wilder, David A.  

Wilder, David A. and Vernon L. Allen  

Wilder, David and Peter N. Shapiro  

Wilder, David A. and John E. Thompson  

Wilson, Warner and Myra Kayatani  

Wilson, Warner and Norman Miller  
Wilson, Warner, Natalie Chun, and Myra Kayatani
1965 "Projection, attraction, and strategy choices in
intergroup competition." Journal of Personality

Worchel, Stephen
1986 "The role of cooperation in reducing intergroup
Austin (eds.), Psychology of Intergroup Relations.
Chicago: Nelson-Hall.

Worchel, Stephen and W. G. Austin
1986 Psychology of Intergroup Relations. Chicago:
Nelson-Hall.

Worchel, S. and N. Norvell
1980 "Effects of perceived environmental conditions
during cooperation on intergroup attraction."
Journal of Personality and Social Psychology
38:764-772.

Worchel, S., E. A. Lind, and Kay Kaufman
1975 "Evaluations of group products as a function of
expectations of group longevity, outcome of
competition, and publicity of evaluations."
Journal of Personality and Social Psychology
31:1089-97.

Worchel, S., V. Andreoli, and R. Folger
1977 "Intergroup cooperation and intergroup attraction:
The effect of previous interaction and outcome of
combined effort." Journal of Experimental Social
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APPENDIX: QUESTIONNAIRE
First of all, we would like to ask you some preliminary questions.

How much do you consciously think about seating arrangements when you try to communicate with others? (Please check only one box on the line).

- do not think about it at all
- think about it very much

Where do you typically sit in a college classroom?
- front ( )
- middle ( )
- rear ( )

When you meet a person for the first time, which of the following do you pay the most attention to?
- their eyes ( )
- tone of their voice ( )
- their overall posture ( )
- other ( )

What kind of parties do you prefer?
- small, intimate gatherings ( )
- large, noisy parties ( )

Up to how many people do you feel comfortable with in a standard-sized elevator?
( ) persons

How impatient do you get in traffic jam? (Check one box).
- not at all impatient
- very much impatient

Some people are more sensitive to noise than others. When you are trying to study, how much noise do you prefer?
- no noise at all
- very noisy

In your opinion what is the most comfortable temperature for a room?
( ) °F

What is your favorite room color?
( )

Please estimate how close you would stand if you were talking to:
- a good friend: ( ) feet
- a member of your family: ( ) feet
- a complete stranger: ( ) feet
Please state your preference (check one):
Klee ( )    Kandinsky ( )

Please indicate the strength of your preference (Please check only one box on the line).

|_______|_______|_______|_______|
|very weak| weak | strong | very strong |
Now we are interested in knowing the reasons people may have had for choosing the Klee paintings. Regardless of whether you personally chose the Klee paintings or the Kandinsky paintings, we want to know why a person would choose the Klee paintings. In other words, some people picked the Klee paintings. They chose it because they found something attractive in it. We want to know what reasons you think they had for being attracted to it. In the space below list as many reasons as you can think of for preferring the Klee paintings.

reasons for choosing Klee

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 
12. 
13. 

Among the reasons you listed above, select the three most important reasons for choosing the Klee paintings. List these below, ranking the very most important reason on line one, the second most important on line two, and the third most important on line three.

1. 
2. 
3. 
non-verbal cues from the first seating arrangement:

We would like to ask you about your impression of members of your own group (i.e., those who picked the same paintings as you did).
Please indicate your group membership on this line __________________(write either Klee or Kandinsky).
For each of the following dimensions, please check only one box on the line which best describes your impression of members of your own group.

my group is:

- dislikable
- likable
- friendly
- unfriendly
- incompetent
- competent
- pleasant
- unpleasant
- unintelligent
- intelligent
- desirable as a friend
- undesirable as a friend
- unattractive
- attractive
- effective
- ineffective
- untrustworthy
- trustworthy

Next, please check only one box on the line which best describes your impression of members of the other group (i.e., those who chose the other paintings you did not choose).

the other group is:

- organized
- unorganized
- irresponsible
- responsible
- confident
- unconfident
In a minute the instructor will again ask you to take a seat in a different arrangement. Wait for this instruction and move your seat when asked.
second transition period:

Now once again please list as many reasons as you can think of for people being attracted to the Klee paintings. Now study the paintings more carefully, and list as many new reasons as you can think of.

reasons for choosing Klee

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.

Now we want you to describe both Klee paintings as vividly as possible. In the space below please write a paragraph for each Klee painting which best describes that painting.
allocation cues from the second seating arrangement:

Next semester we will conduct a similar experiment, except for the fact that it will involve the differential allocation of points to participants. Without knowing the particulars of this research, please tell us how you think we should allocate points to those people who chose Klee versus Kandinsky. For each of 8 questions, you must choose between two different allocations.

Check which allocation you prefer:

1. check ( ) Klee group gets 7 and Kandinsky group gets 9, or one ( ) Klee group gets 8 and Kandinsky group gets 4
2. check ( ) Klee group gets 6 and Kandinsky group gets 4, or one ( ) Klee group gets 7 and Kandinsky group gets 10
3. check ( ) Klee group gets 7 and Kandinsky group gets 5, or one ( ) Klee group gets 6 and Kandinsky group gets 7
4. check ( ) Klee group gets 7 and Kandinsky group gets 9, or one ( ) Klee group gets 8 and Kandinsky group gets 12
5. check ( ) Klee group gets 6 and Kandinsky group gets 8, or one ( ) Klee group gets 7 and Kandinsky group gets 3
6. check ( ) Klee group gets 7 and Kandinsky group gets 5, or one ( ) Klee group gets 9 and Kandinsky group gets 12
7. check ( ) Klee group gets 6 and Kandinsky group gets 4, or one ( ) Klee group gets 7 and Kandinsky group gets 1
8. check ( ) Klee group gets 6 and Kandinsky group gets 8, or one ( ) Klee group gets 5 and Kandinsky group gets 4

In a minute the instructor will again ask you to take another seat in a different arrangement. Wait for this instruction and move your seat when asked.
third transition period:

Once again study those paintings carefully, and think about the reasons people had for choosing the Klee paintings. This time, instead of asking you to imagine what those reasons might be, we are providing you a list of possible reasons. Please select and rank the 10 most important reasons people had for choosing the Klee paintings. In other words, on the first line list the very most important reason, on the second line the second most important reason, etc.

list of possible reasons: organized, mellow, all-over design, regular, smooth, colorful, busy, unique, disorganized, harsh, abstract, symmetric, dynamic, simple, interesting, active, nonsymmetric, creative, original, alive, exciting, violent, concrete, contrasting colors, boldness, subtle, relaxing, pleasant, harmonious, bright, imaginative, free-style, exuberant, open, sharp, conservative

reasons for choosing Klee

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

Now pretend that you have been asked to convince someone to pick the Klee paintings over the Kandinsky ones. In the space below write the most persuasive paragraph you can, using the most persuasive arguments you can think of, for convincing a person to choose the Klee paintings.
non-verbal cues from the third seating arrangement:

Once again, we would like to ask you about your impression of members of your own group. For each of the following dimensions, please check only one box on the line which best describes your impression of members of your own group (i.e., those who chose the same paintings as you did).

my group is:

organized                       unorganized
irresponsible                  responsible
confident                      unconfident
stingy                         generous
kind                           unkind
untalented                     talented
sophisticated                  unsophisticated
uncooperative                  cooperative
rational                       irrational

Next, please check only one box on the line which best describes your impression of members of the other group (i.e., those who chose the other paintings).

the other group is:

dislikable                     likable
friendly                       unfriendly
incompetent                    competent
pleasant                       unpleasant
unintelligent | intelligent
________|________|

desirable as a friend | undesirable as a friend
________________________|

unattractive | attractive
________________________|

effective | ineffective
________________________|

untrustworthy | trustworthy
________________________|

We would like to ask you questions about your general reaction to the study, about your use of social space, and some background questions about yourself.

Have you seen these particular paintings by Klee before?
Yes ( ) no ( )

Have you seen these particular paintings by Kandinsky before?
yes ( ) no ( )

How much did you think about the reasons that your group members might have had for making their choice of paintings? (Check one box).

did not think
about it at all
________|________|________|

thought about it
very much
________|________|________|

How much did you think about the reasons that the other group members might have had for making their choice of paintings?

did not think
about it at all
________|________|________|

thought about it
very much
________|________|________|

How curious were you about why your group members made the choice of paintings they did?

not curious at all
________|________|________|

very much curious
________|________|________|

How curious were you about why the other group members made the choice of paintings they did?

not curious at all
________|________|________|

very much curious
________|________|________|
Did you become more certain (or less certain) about your choice of painting after listing reasons?

| became much | somewhat less certain | somewhat more certain | became much more certain |

Please indicate once again the strength of your preference of painting.

| very weak | weak | strong | very strong |

Which seating arrangement did you like most?
first ( )
second ( )
third ( )

Which seating arrangement was the most comfortable for you?
first ( )
second ( )
third ( )

Did you feel comfortable when you moved your seat several times?
yes ( )
no ( )

In general, do you like to be alone or to be in a crowd?
alone ( )
crowd ( )

It is generally known that aspects of the physical environment affect human feelings. Some of those aspects are temperature, humidity, light, etc. Which of those aspects do you think most affects your feeling?
( )

Do you consciously think about personal distance when you communicate with others?
not at all | very much

| very much |

What is your age?

sex: female ( )
male ( )

school year: freshman ( )
sophomore ( )
junior ( )
senior ( )

*When you finish, turn this questionnaire over and wait for further instruction.*
first transition period: (distraction condition)

instructions: Do your best to solve this Jumble. Try to unscramble as many words as you can and try to solve the riddle answer.

Unscramble these four Jumbles, one letter to each square, to form four ordinary words.

TULIQ

NESOO

DELTUC

BRUPES

WILL YOU LOVE ME WHEN I'M OLD AND UGLY?

Now arrange the circled letters to form the surprise answer, as suggested by the above cartoon.

Answer: "OF_______,_______"
second transition period: (distraction condition)

instructions: Fold a paper bird and a paper hat using the squares of paper we've provided you.

### PAPER BIRD

1. ![Fold in]
2. ![Fold over]
3. ![Fold over]
4. ![Fold in]
5. ![Turn out]
6. ![Fold up]
7. ![Fly away]

### PAPER HAT

1. ![Fold over]
2. ![Fold over]
3. ![Fold over]
4. ![Fold up]
5. ![Turn over]
6. ![Fold up]
instructions:

Match the correct captions with these cartoons. Write the letter (a,b,c..) of the correct caption on the space next to the cartoon.

When you are finished, determine your total score. The correct answer is listed at the bottom of the page.

1. Ginger decides to take out Mrs. Talbot's flower bed once and for all.
2. "Here comes another big one, Roy, and here—we—goooooowhooohoooooo!!"
3. "Dad! Find out if they have cable!
4. "Quick, Abdul Desert? One's or two?"
5. "You have to prime it, you know."
6. Between classes at the College of Laboratory Assistants
7. "Wendell ... I'm not content."
8. "Hey! I'm coming, I'm coming—just cross your legs and wait!"
9. "Now that desk looks better. Everything's squared away, yessir, squaaaaared away."
10. "C'mon, c'mon—it's either one or the other."
11. "Sorry to intrude, ma'am, but we thought we'd come in and just sort of roam around for a few minutes."
12. "Rusty! Two points!"
13. "As if we all knew where we're going."

SCORE: _____ correct.
instructions: Use your imagination and fill in each balloon with a caption.