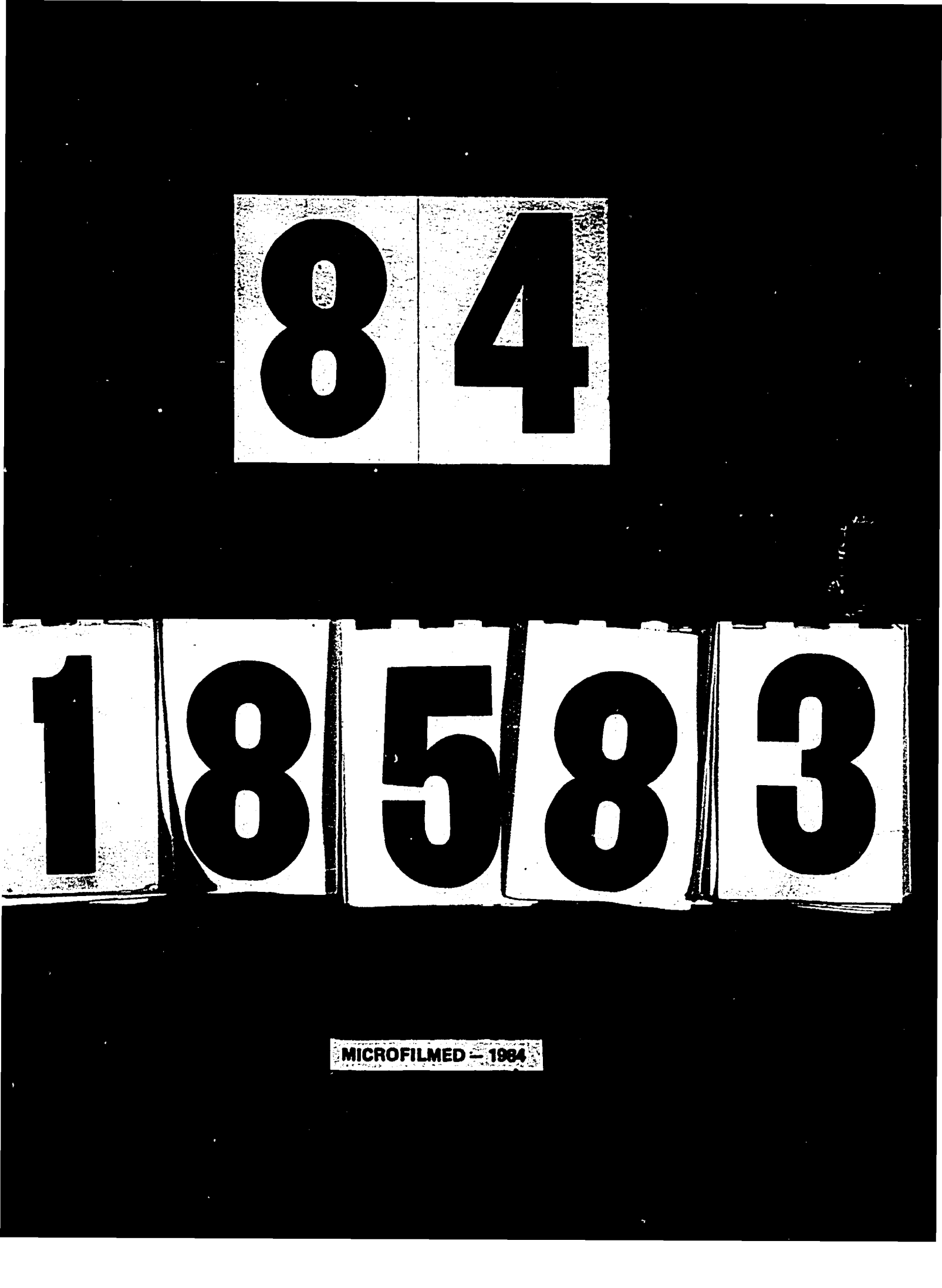
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By

ERIC J. JOLLY

Norman, Oklahoma

1984

SOCIAL COMPARISON AND THE PERCEPTION OF SIMILARITY

A DISSERTATION

APPROVED FOR THE DEPARTMENT OF PSYCHOLOGY

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ABSTRACT

According to social comparison theory, when the motivation for self evaluation predominates, people actively seek the opportunity to make comparisons of their attitudes and abilities with the most similar other available. Research of individual-to-individual comparison processes has demonstrated that externally defined dimensions of "similarity" can be effective predictors of one's selection of a comparison reference. The individual difference dimensions, ambiguity tolerance and category width, were used to extend our understanding of the concept of similarity, by examining internally (subjectively) defined dimensions of "similarity".

Ambiguity tolerance (AT) identifies a person's tendency to seek out or avoid ambiguous situations and problems. Category width (CW) identifies a person's tendency to make consistent errors of inclusion or exclusion in the creation of group boundaries. After identifying the structural properties of groups which relate to breadth of membership and homogeneity of membership, we demonstrate the utility of CW and AT for predicting individuals' selection of comparison groups.

Two experiments are presented which redefine traditional dimensions of similarity in favor of a model

of perceived similarity. In Experiment 1, subjects were given information about themselves and others along an attitude dimension. These "others" comprised four groups representing different levels of breadth and homogeneity. Subjects were asked to select a preferred group for discussion of the attitude topic.In Experiment 2 the "others" had not been assigned to groups, and subjects were asked to construct the group with which they would prefer to work. Results indicate that subjects prefer reference groups which are constructed in a manner consistent with their cognitive style. Additionally, the comparison process for group construction is shown to be different from the process of comparison to established groups. Implications for the theory of social comparison and the apparent drive-like functions of CW are discussed.

Social Comparison and the Perception of Similarity

"We forfeit three-fourths of ourselves in order to be like other people."

- Arthur Schopenhauer (1788-1860)

INTRODUCTION

When we find ourselves uncertain of our place in life, the value of our goals, abilities and beliefs, we seek the kind of information which can lend clarification and quality to our evaluations of self. More often than not, we look to others' experiences as a standard of measure by which to assess our own attitudes and performance. This process of social comparison, the seeking out of others to gain more accurate information about ourselves, was first detailed by Festinger (1950, 1954a). Festinger proposed that in lieu of an objective, nonsocial criterion, we choose to make comparisons with a similar other as a basis for self evaluation. This self evaluation process originates from a drive-like disposition to gain an accurate self portrayal. According to Festinger, we need to compare frequently our skills, abilities, and interests with those of similar others. The tendency to compare oneself with another is proportional

to the degree of similarity between both people (Festinger 1954a). Given the opportunity, we actively seek the most similar comparative other.

A primary focus of this research is a proposed integration of two key areas in social comparison, the dimensions used in selecting a most similar group and variables that affect individual differences in cognitive processing. We intend to unite these areas by defining the cognitive framework on which social comparison is based as a means of clarifying how similarity judgments are made by individuals seeking a reference group. In order to understand better some of the social comparison processes operative in the choice of referent or comparison group, we intend to identify more clearly both the salient features by which a group can be evaluated and how the individual uses these features in the evaluation process. In the following pages we briefly review the role of similarity in theories of social comparison, and introduce some cognitive style variables which we believe are related to issues of similarity. Then, two experiments investigating the role of cognitive styles in social comparison are presented. We conclude with a discussion of some theoretical extensions.

SOCIAL COMPARISON MOTIVATIONS

The theory of social comparison is founded on the assumption that there exists a drive to evaluate one's opinions and abilities (hypothesis 1 in Festinger, 1954a). People need to verify the accuracy of their assessment of their own attitudes and abilities. In the absence of objective standards of reference, people are uncertain of the value of their own opinions and abilities. The use of an external source of reference (social comparison) allows them to reduce the uncertainty of their self evaluations (Gruder, 1977). Thus, people will desire a comparison when there exists some uncertainty in their self evaluation. If at the time they are forming an assessment people have access to comparative norms which can be used to evaluate their own abilities or attitudes, they will actively make use of normative information (Ward, 1981). If such information is only made available after an evaluation judgment has been made, people will not seek access to evaluative information (Jones & Regan, 1974).

Situations that trigger an evaluative social comparison include circumstances where subjects do not have knowledge of the value of their abilities or attitudes. The self evaluation process, as conceived by

Festinger (1954a), is concerned with a person's need to determine a basic conception of reality, not a need to confirm an already existing reality (Mettee & Smith, 1977, p. 70). In social comparison, individuals are not seeking consensual validation of already existing knowledge structures: They are gaining new, external measures of reality. This motive for evaluation distinguishes social comparison theory from other models in which people may also seek affiliation with similar others (c.f. Byrne's affiliation-attraction hypothesis, which focuses on the seeking of consensual validation, Byrne, 1971; Byrne, Nelson, & Reeves, 1969).

Social comparison is not limited to situations that involve only evaluative motives. Two distinct motives can be inferred from Festinger's original propositions. One is based on a need for self evaluation; the other on a need for self enhancement (Thornton & Arrowood, 1966).

Self enhancement is different from self evaluation in that it occurs after people already have an accurate self portrayal, and after their self-esteem has been threatened. Self enhancing comparisons are intended to increase self esteem. When a comparison to the most similar other would further threaten the person's

self-esteem, the need for self enhancement would outweigh the need for self evaluation, and the individual would avoid continued comparisons with similar others for evaluative purposes (Hakmiller, 1966; Friend & Gilbert, 1973). People seek comparisons that will support positive self evaluation, and avoid comparison sources which may confirm negative evaluations. When people's self-esteem has been threatened, they will often select a far less similar, perhaps inferior, other with whom to make a comparison (See Wills, 1981).

Self enhancement may also be a primary motive when there is a close social relationship between comparators. In these instances a negative evaluation could be construed as a potential threat to the relationship because it would hinder further self disclosure and interpersonal communication. (Mettee & Smith, 1977, p. 84). Recently, Tesser (Tesser, Cambell & Smith, 1984; Tesser,1983; Tesser & Cambell, 1981) has presented a detailed theory which outlines situations in which the self enhancement motive is predominant in social comparison. Since our research involves only evaluative motives, the functions of self enhancement as outlined by Tesser and his colleagues are beyond the scope of our

current work, and we will not consider them further here.

SIMILARITY AND COMPARISON SOURCES

As previously stated Festinger (1954a) believed that when people opt to make a social comparison for self evaluation purposes, they will select persons most similar to themselves as the basis for comparison (hypothesis 3, corollaries 3A and 3B). There is a large body of literature related to this basic proposition (Latane, 1966; Suls & Miller, 1977). In general, the idea that people make social comparisons to similar (or slightly superior) others is well supported. The reason for this is that, in evaluative social comparison situations, subjects perceive the most useful source of reference to be the most similar others available (Wilson, 1973).

The drive for comparison to similar others is evident in evaluations of both attitudes and abilities. In an opinion-oriented context, people will select for comparison the most similar other available (Martens & White, 1975). If the comparisons are on ability dimensions, however, people are likely to seek a very similar, although slightly superior other (Martens & White, 1975; Wheeler, 1966): People prefer to engage in an

upward comparison of abilities because such comparisons have the potential to confirm a positive self evaluation. Ability comparisons have been shown, however, to be more threatening to self-esteem because a lack of similarity may provide self evaluation at the expense of self enhancement.

If there is no threat to self esteem, people select against downward comparisons of abilities. Downward comparisons are found to be less satisfying since such a comparisons can only support "below average" ability inferences (Shrauger, 1975). When it is avoidable, subjects will generally choose not to make a comparison of abilities at all (Sarnoff & Zimbardo, 1961; Tiechman, 1973). In instances where comparisons of both abilities and attitudes are equally available, people are more likely to make comparisons of attitudes. (Miller & Suls, 1977, p. 117). Therefore, taking the above considerations into account, the focus of the present research will be on comparison of attitudes.

EXTENDING THE FOCUS OF SOCIAL COMPARISON

In the preceding pages, we have demonstrated some of the principle considerations of social comparison theory

and the major lines of its development. With some exceptions in issues involving self enhancement, social comparison theory has received considerable support in the research literature (Shaw & Costano, 1982; p. 269).

Another one of the primary areas of investigation in social comparison has been the role of similarity in the comparison process. Most research has defined similarity externally, often creating "standard strangers" (see Byrne et al., 1969) representing issues and attitudes that are either positively or negatively correlated to subjects' beliefs.

Byrne's law of attraction (1971) focuses on similarity as one factor for providing consensual validation. In support of his model, Byrne has demonstrated that similarity judgements resulting in attraction toward standard strangers can be based on a variety of stimulus types, including both task-relevant and task-irrelevant attitude information. He has shown that information relating to economic background, race, defense mechanisms, general attitudes, and need attitudes can be included as dimensions of similarity. According to Byrne, in the comparison process the most similar other may be identified by more than one similarity construct.

Although much research supports the idea that people make comparisons to the most similar other, we lack a basic understanding of how the individual defines the most similar other (Shaw & Costano 1982, p. 269). We know little about either the standards by which people make their judgments of similarity, or factors that may mediate a person's perception and use of externally defined dimensions of similarity (Castore & Denino, 1977, p. 126). Even though social comparison theory is cognitive in nature (Gruder, 1977), theoretical development has not considered cognitive issues relating to social comparison. Nor has it dealt with the individual's processing of the information from which judgements of similarity are made (See note 1).

Additionally, a majority of the research stimulated by Festinger's theory has been concerned with individual-to-individual comparisons on single dimensions of similarity (VanKnippenberg, Wilke, and De Vries, 1981). Festinger believed, however, that social comparison theory also had implications for group formation and group membership (Festinger, 1950). He proposed that one important consequence of the social comparison process is that it produces social groupings, and because of the

drive to compare with similar others, these groupings should possess a high degree of uniformity (Festinger, 1950; p. 124; Suls & Miller, 1977 p.8). A primary purpose of Festinger's model was the prediction of group affiliation responses and group formation. Just as in individual- to-individual comparison where the individual seeks out the most similar referent other individual, in an individual-to-group comparison process, the individual will seek out the most similar reference group. Recent research supports this contention. In one particularly noteworthy effort to understand individual-to-group perceptions, Granberg, Jefferson, Brent, and King (1981) demonstrated that attributions to groups can be interpreted in much the same way as are attributions to individuals. In their research, attitude attributions along similarity dimensions were demonstrated to occur in the individual-to-group perspective in the same way that the individual-to-individual attributions occur. When attributions of similarity-dissimilarity are made about groups, they appear to be based on the salient dimensions (or structural properties) of the groups. One implication of Granberg et. al's. research is the need to identify more clearly both the salient features by which a group

can be evaluated (i.e., group structure) and the ways the individual uses these features in the evaluation process (i.e., the cognitive style variables alluded to earlier).

Beyond the few exploratory studies, such as Granberg et al. (1981), the individual-to group social comparison process has not been as extensively detailed in the research literature. Therefore as stated earlier, a principle concern of our research is the integration of two key areas in social comparison, variables that affect individual differences in cognitive processing, and the dimensions used in selecting a most similar group. We intend to bring these areas together by defining the cognitive framework on which social comparison is based; thus, clarifying the ways similarity judgments are made by individuals seeking a reference group.

GROUP STRUCTURE AND INDIVIDUAL-TO-GROUP PERCEPTIONS

A number of attempts have been made to identify basic structural properties of groups for a variety of research problems (Cattell, 1955; Scott & Scott, 1981). In general, most of the properties of groups that have been identified were not intended to relate to issues of similarity. Those properties which appear to have a strong possiblity of

relating to perceptions of similarity are those based in some way on group congruence. Here, congruence should be understood in terms of the variability among group members, and the accepted diversity among group members. This notion of congruence is found in two of the structural group properties proposed by Scott and Scott (1981). They present two terms, permeability and consensus, that identify characteristics of groups which should have bearing upon issues of perceived similarity.

According to Scott and Scott (1981), permeability, being the breadth of membership, defines the "boundaries" of a group. The more permeable a group, the wider its range of membership. Pettigrew (1967, p. 246) has suggested that knowledge of membership range is an important factor in a person's selection of a social comparison group.

The other characteristic of group congruence, consensus, relates to the strength of similarity among group members. Within a given group, consensus describes the degree to which members are diverse or similar in abilities or attitudes. For Festinger (1954a), consensus was an important factor for defining group similarity. In early research, Hoffman, Festinger, and Lawrence (1954)

reported a study in which the similarity of a three member reference group was defined by the (numerical) variability among members' scores on an IQ test. The high consensus, most similar group was defined as the group with the least deviation of the ability trait (IQ scores) about the mean.

As described above, the issues of permeability and consensus are not fully independent. It must be noted that a more permeable group, by virtue of its greater breadth of admissible candidates, is probably lower in general consensus. The deviation is not independent of the range.

One additional construct dimension of group identity is the general or "overall" opinion and ability of the group as traditionally used in social comparison research. Taken as a whole, that which defines the consensus opinion or overall ability of the group is the group's mean attribute. This dimension is probably the simplest and most frequently used defining characteristic of a group (Shaw, 1976). In most social comparison research, this objective average, or mean similarity, serves as the defining dimension of similarity for a potential reference group (Diener, Lusk, Defour, & Flax, 1980).

To summarize, there are (at least) three properties of groups which are believed to be salient to an individual

when characterizing a group. First, there is the mean or average opinion/ability of the group. Second, there is a characteristic of breadth or range which describes the differences among a group's most diverse members, and finally, the characteristic of diversity (average deviation) within the group. Given a described range, members may be of a single mind (homogeneous), an unambiguous membership. Alternatively, they may be relatively more diverse (heterogeneous), more ambiguous and varied in skill or opinion.

Following from these structural group variables, we can identify individual processing variables that may mediate the perception of group similarity. If we detail the differences between groups on the structural dimensions mentioned above and identify individual cognitive style differences that relate to these structural dimensions, then we may better understand individual perception of similarity for comparison groups. This method of theory development, the cojoining of construct and process variables, has been used successfully in extending a variety of theoretical frameworks (Durso, Reardon, & Jolly, in press; Jolly & Reardon 1984; for a discussion of the epistemological

issues for this method of theory construction, see Mischel 1973.).

CATEGORY WIDTH AND PERCEIVED SIMILARITY

It has recently been suggested that cognitive style variables should serve as a major focus for understanding and redefining the comparison process (Pettigrew, 1982). Pettigrew proposes that the cognitive style variable category width may be useful in defining the boundaries of inclusion for those who will be perceived as similar. Category width is an individual difference dimension that describes a person's tendency to construct and work with broad or narrow categories of events. This cognitive style variable defines individual consistencies in structuring and organizing response sets across different situations. According to Pettigrew, broad categorizers tend to make errors of inclusion and to overgeneralize similarities. They are likely to accept as members of a classification a very wide range of stimuli. Conversely, narrow categorizers tend to make errors of exclusion. Making a greater number of distinctions between stimuli, they notice and attend to differences among stimulus sets which would not be of significance to broader categorizers

(Steiner, 1968; Steiner & Rogers, 1963).

As an example, let us construct two groups that have the same mean attitude position on some attributional issue. (In this and other examples, it is expected that social comparisons of either attitude or ability follow principles of similarity.) One of these groups is composed of a broad range of members, with a person at each of two extremes. The second group (having the same mean attitude position), is composed of members who present a narrower range of positions, all members being more moderate. If we present these groupd (which vary only in breadth) to individuals we should be able to predict their perception of the more similar reference group based on their individual cognitive style, category width. The narrow categorizers should have a tendency to perceive the group with the broader range as containing members who are not appropriately similar to themselves or to other group members. The broad categorizers, on the other hand, should be more likely to believe that either group is appropriately similar to themselves, since they do not consider the members who vary a great deal from the mean as being outside of their reference group boundaries. There is a possibility that in accepting such diverse

groups as similar, broad categorizers do not seek or actively make social comparisons. It is more likely, however, that they will pursue the broader, more diverse group, as it will be perceived as more completely defining their category of similarity. (See note 2)

The breadth of a membership group is identified by the group's two most divergent members, not by the diversity among members. One might wonder how the factor of group size would relate to perception of diversity. To this author's knowledge, there is no evidence, nor theoretical construct, to suggest that group size is related to perception of breadth.

AMBIGUITY TOLERANCE AND PERCEIVED SIMILARITY

In addition to being either broadly or narrowly defined, the groups above can also be described as more or less ambiguous in composition. A group is more ambiguous when it admits both greater variability and diversity to its membership, where diversity is the degree of homogeneity among members. If members are scattered along a salient similarity dimension, rather than clustered, the group reflects a greater diversity. If all members of a group are perceived as falling within the boundaries (or

category) of similarity, then the greater diversity among the members, the more ambiguous the group. In cases where most members deviate little from the mean attitude or ability, the result would be a relatively less ambiguous group. Further, a group should become more ambiguous as its membership size increases. An increase in membership leads to less clarity and greater ambiguity when the increase reflects more members distributed (as opposed to clustered) along the salient similarity dimension. The cognitive style of relevance to this type of structural group construct is tolerance for ambiguity (Budner, 1962; MacDonald, 1970).

Ambiguity tolerant (AT) persons like and seek ambiguous situations. They prefer diversity to uniformity. Those low in ambiguity tolerance (ambiguity intolerant; AIT) prefer closure. They seek clearly defined, more concrete situations and problems, even at the occasional expense of reality (English & English, 1958; MacDonald, 1970). Clearly, then, the drive for comparison groups among AT and AIT individuals has a sharply differing focus. An ambiguous group will be more attractive to AT people; AIT individuals, in making comparisons of similarity will be attracted to those groups that are less

ambiguous. The more extreme an individual in terms of tolerance or intolerance of ambiguity, the stronger the drive for a comparison group that is congruent with his or her cognitive style. Among persons who fall at the extreme ends of the continuum, the drive for an ambiguous or unambiguous group may be of greater importance than the mean similarity of the group. AT persons should seek a more ambiguous group structure, and AIT persons should seek a less ambiguous group structure, both groups having somewhat less regard for the mean similarity of available comparison groups. Recall that ambiguity should be affected by diversity among members and the number of divergent members (size of the membership group).

SELECTION OF REFERENT GROUP

The two cognitive styles, ambiguity tolerance and category width, were developed separately and relate to different methods of processing (See note 3). However, within Festinger's (1954a) model of comparison to similar others, they can work together to predict individual selection of a reference group. Category width may identify those groups that will be accepted as constituted of members appropriately similar for making social comaprisons. The selection of a particular group for comparison from those that are perceived to be similar (with respect to the individual's perception of category width) will be based on the drive for an overall ambiguous or unambiguous group. Narrow categorizers who are AIT should seek a nondiverse group with members who are similar to each other and to the themselves. Narrow categorizers who are AT should define a narrow range for group membership, but also seek to utilize fully that range, preferring the most diverse composition of membership within their narrower range of similarity.

Broad categorizers should accept as similar those groups which include a greater range of members. If broad categorizers are AT, they will seek groups whose

membership is not only broadly established, but whose members are most varied within this wide range of the characteristic skill or attitude. Conversely, broad categorizers who are AIT should accept a broad group focus, but within this focus will seek to limit variablity and diversity among the group membership.

These are the primary relationships of interest to us. Next, we will present two experiments in which we systematically varied structural components of groups in a way that allowed us to study choice of referent group as a function of the group properties and the individual cognitive style variables that we presented above. The first experiment was intended to verify the basic relationships of our interactive model for social comparison. It addressed a fundamental question for our application of Festinger's model: Do people who are broad categorizers make social comparisons? Assuming that both broad and narrow categorizers exhibit a drive for social comparison, is the choice of referent group a function of cognitive style (i.e., category width and ambiguity tolerance) as predicted by our model? In this experiment, individuals were given attitude position information about themselves and about the membership of several groups.

They were asked to select the group with which they would most prefer to work in a discussion of the attitude survey topic.

The second experiment was an extension of the first. It investigated more completely the influence of cognitive style in social comparison in an attempt to generalize the application of the principle mechanisms outlined to the construction of social referent groups. Based on attitude position information about themselves and others, subjects were asked to construct their own ideal discussion group. In this design the subjects controlled the range, variability, and mean similarity of the groups they built.

In both experiments, we attempted to separate the effects due to AT/AIT from those attributable to category width by varying the size and related diversity of potential reference groups. As stated earlier, group size is not relevent to dimensions of breadth, but does relate positively to issues of ambiguity. As the group's size is increased, we can amplify it's ambiguity while breadth can be held constant. Therefore, as group size increases only the effects due to AT/AIT should be magnified, and those related to category width should remain relatively stable.

EXPERIMENT 1

Experiment 1 was intended to demonstrate a basic relationship of cognitive style to both perception and choice of similar others. In this experiment variability within group membership was manipulated and the objective mean similarity held constant. This was done by varying a salient characteristic about a group mean, affecting both ambiguity and breadth. The descriptive characteristic, individual scores on an attitude questionnaire, utilized attitudinal information rather than, for example, ability. This was done because such information generally ensures greater uncertainty in potential comparison situations (Wilson, 1973), and can create a need for social comparison (Festinger 1954b, p.196). As the salient descriptive characteristic of individuals within the group deviate more about a given mean, the group becomes more ambiguous. The two extreme deviations in each direction define the breadth of the group. Remember that the dimension of breadth subsumes a level of ambiguity; extreme deviations contribute greatly to the ambiguity of the group.

Based on the earlier discussion, it is reasonable to assume that the cognitive styles, category width and

ambiguity tolerance, would affect individual selection of a comparison reference group. We predicted that broad categorizers would prefer to join groups that have a greater breadth of membership, and narrow categorizers would prefer groups that have less breadth of membership. Among broad categorizers, those who are ambiguity tolerant (AT) were expected to select reference groups with the greatest diversity, the next most diverse groups being selected by broad categorizers who are ambiguity intolerant (AIT). Although narrow categorizers who are AT were expected to select from groups with less breadth, they were also expected to prefer groups of relatively more diversity when compared to narrow categorizers who are AIT. Finally, it was expected that the effects due to AT-AIT would be magnified for both broad and narrow categorizers as the size of the comparison groups increased.

SUBJECTS

The subjects were 80 undergraduates who participated as one option of a research familiarization requirement for introductory psychology courses.

PROCEDURE

To ensure that the subject perceived a personal relevancy for the group choice decisions they would make, the experiment was run in a group context. The group context further encouraged subjects' belief that they would Ae involved in the discussion group they were to select. In order to maintain the group atmosphere and allow efficient collection of data, the experiment was divided across three rooms. In the first and third rooms, the subjects met in their groups; in the second room they worked individually with an experimenter.

When the subject entered the first room of the laboratory, he or she was seated among other subjects and presented with a number of paper-and-pencil questionnaires. The questionnaire packet contained the two cognitive style measures and two attitude assessment questionnaires. On both attitude questionnaires the subject was asked to indicate (using a 6-point scale) the relative desirability of personality trait words. One of these instruments was titled "dating behavior", and the desirability of the personality traits was targeted toward an "ideal" dating partner. The other survey was oriented to an "ideal" supervisor, describing the type of boss a

student would want to be, or want to have. The trait words for both domains were selected from the standardized listing of personality trait words developed by Anderson (1968). A variety of positive, negative and neutral traits were included.

The first instrument was the revised scale for ambiguity tolerance (Macdonald, 1970). This was followed by the "Management Style" questionnaire, Pettigrew's (1958) Category Width Scale, and the "Dating Behavior" Questionnaire.

Once the subject had completed the paper-and-pencil questionnaires, the experimenter collected the answer sheets and spent a few moments ostensibly "scoring" the dating behavior and management style surveys. The subject was then given two predetermined scores and was told that these scores were derived from his or her responses. After this the subject was escorted to the second room for the second part of the experiment.

In phase two, the subject worked individually with a different experimenter. Here, she or he was told that the experimenter was constructing potential discussion groups for the topics of dating behavior and management style. The subject was told that for both groups, the discussion

would focus on interpersonal style.

The subject's attention was then directed to a listing of four partially completed groups; these were mock groups constructed for the experiment. Each group represented its members by subject number and score on the appropriate attitude survey. Subjects' own score was interpreted for each of them, and the standing relative to members of the mock groups was clearly explained.

The dimension of interest within the group was the relative deviation of group members' scores from a fixed mean. The score given to the subject was three points above this group mean. The group members varied systematically around this mean, allowing the groups to represent four levels of variability. For example, if the subject's score on the dating questionnaire was 50 the scores for all group members would vary about the number 50 as follows: GROUP A (69, 32, 45) GROUP B (65, 36, 44) GROUP C (60, 39, 46) GROUP D (56, 43, 47). In this design the subject's choice of group represents one of four levels of range and variability (Where group A is the widest, most diverse group, and D the narrowest, least diverse).

A similar procedure was then repeated using the other

discussion group topic. Only this time the subjects were told that the discussion groups would be somewhat larger, containing seven people. In the large group choice situations, the range of subject scores also varied about a fixed mean, for example: Group A (69, 56, 53, 32, 45, 47, 48) Group B (65, 55, 54, 36, 46, 46, 48) Group C (60, 56, 53, 49, 46, 47, 49) Group D (56, 55, 52, 43, 47, 48, 49).

The ranges represented above were selected as appropriately diverse based on the measurement dimensions used by Pettigrew (1958) for identifying broad and narrow categorizers. The descriptive characteristics represented the type of information sets which were described by Merton (1957) as necessary for formulating reference groups. This type of information has been demonstrated by Wheeler et.al. (1969) as increasing the tendency of subjects to make evaluative social comparison. The method of presentation was consistent with most trait or ability evaluative social comparison research (Gruder, 1977). In both small and large group choice situations, the group discussion topics and the order of presentations of topic by group size were appropriately counterbalanced.

Once the subject had selected the reference group

with which he or she would prefer to work, he or she was asked to rate both the most similar group, and the quality of the options available, (i.e., the amount of choice: was there a good selection of groups?) using a six-point scale where one indicated little or no real choice and six a great deal of choice. Thus the dependent measures in this study were; amount of choice, relative diversity of selected membership group, and relative diversity of the group identified as most similar. The subject was next moved to the third section of the laboratory.

In the third section of the experiment the subject completed the verbal subscale for the Shipley-Hartford Intelligence Test (Sines, 1958). This verbal ability test was used because participation in discussion groups relies heavily on verbal skills, and insecurity about verbal and other abilities has been shown to adversely effect the preference for similar others (Goldstein & Rosenfeld, 1968). We sought to control variability on this dimension by using this measure of verbal ability as a covariate. Finally, the efficacy of the manipulations was assessed, and subjects debriefed.

RESULTS

Subjects were assigned to groups of broad or narrow categorizers and ambiguity tolerant or intolerant persons on the bases of a quartile split on the relevant instruments. Subjects among the lowest quartile for one measure had to be in or near the lowest quartile of the second to be assigned to a group. No broad categorizer had a score lower than 65; no narrow categorizer had a score higher than 58. No AT person had a score lower than 60; no AIT person had a score higher than 55. This resulted in ten subjects per cell.

Analyses of covariance, with Shipley-Hartford verbal score as the covariate, were performed on all dependent measures. These analyses did not appreciably alter any pattern of results. Thus only the 2 x 2 x 2, CW x AT x group size, fixed model analyses of variance are reported below.

GROUP DIVERGENCE

The group divergence measure was represented by the four levels of range and variability available in the subjects' selected reference group. The group with narrowest range and least variability represented the

lowest level (1); the broadest, most diverse group represented the highest level (4); and the other two groups levels of range and diversity between these extremes (2 and 3). Mean measures of group divergence are given in table 1.

Insert Table 1 about here

There were four significant effects. There was a main effect for category width. Broad categorizers selected groups with a wider range ($\underline{M}$ = 3.275) than narrow categorizers ($\underline{M}$ = 2.375), $\underline{F}(1,36) = 8.82$, $\underline{p}<.01$.

There was an AT main effect. Those subjects who were identified as ambiguity tolerant opted to join discussion groups that represented greater diversity ($\underline{M}$ = 3.40) than the groups selected by those identified as ambiguity intolerant ($\underline{M}$ = 2.25), $\underline{F}(1,36) = 14.41$, $\underline{p}<.001$.

There was also an effect for group size. As group size increased, there was a tendency for subjects to select a more diverse group, $\underline{F}(1,36) = 6.90$, $\underline{p}<.05$.

Finally, there was a three way interaction, $\underline{F}(1,36)$ =

5.28, $p<.05$. Inspection of table 1 reveals that those subjects who were both AIT and narrow selected the least diverse group available, regardless of size of group. Subjects who are both AT and broad opt for the greatest diversity, regardless of group size. The effects of group size are evident only among those subjects who are identified as either broad and AIT, or narrow and AT. In both cases, as group size increased the subjects selected groups representing greater diversity. We had anticipated that group size would only be related to the dimensions of AT/AIT.

PERCEIVED SIMILARITY

Mean group similarity scores (those groups identified by subjects' as most similar) are given in table 2. Analysis of variance showed a main effect for group size. As the group size increased, subjects were more likely to select a more divergent group, $F(1,36) = 6.22$, $p<.05$.

Insert Table 2 about here

Careful inspection of Table 2 reveals only small differences between subjects' reports of most similar

group as a function of group size. There is an overwhelming tendency for all subjects to identify the least diverse group as most similar. However, when selecting from larger groups, subjects were more likely to deviate from this tendency and identified slightly wider, more diverse groups as similar. Importantly, there seems to be an indication here that dimensions of CW and AT do not affect the perception of objective similarity. For both AT and CW measures of similarity were nonsignificant, $F<1.0$.

THE VALUE OF CHOICE IN GROUP MEMBERSHIP

Mean ratings of choice are given in Table 3.

Insert Table 3 about here

There were no significant effects for amount of choice (quality of selection). This may indicate that all classifications of subjects, in both large and small group choice situations perceive the options offered as equally viable although perhaps not equally desirable.

EXPERIMENT 2

Experiment 2 was designed to clarify and extend the findings of Experiment 1. We attempted to generalize the situation in which the social comparison process occurs: Subjects were given control over the breadth and ambiguity of their preferred comparison group.

In Experiment 2 the subject was given the opportunity to create his or her own reference group. In some cases it has been found that when subjects construct groups, rather than accept an assignment to groups, they are more likely to self-evaluate (Wilson & Benner, 1971). This procedure, in which people have greater control over deciding with whom they will associate, often emphasizes individual leadership in group construction and is not new to the literature (Miller & Suls, 1977).

It was expected that broad categorizers would construct groups with a greater breadth of membership, and narrow categorizers would construct groups with less breadth of membership. Among both broad and narrow categorizers, those who were AT, were expected to construct groups with a greater diversity in membership than those who were AIT. It was thought that the effects due to AT-AIT would be magnified for both broad and narrow

categorizers as the size of the groups increases. As group size increased, AT persons may sacrifice mean similarity in efforts to create diversity, and AIT persons may sacrifice mean similarity in efforts to create less diverse groups.

SUBJECTS

Subjects were 80 undergraduates who participated as one option of a research familiarization requirement for introductory psychology classes. These were not the same subjects who participated in experiment one.

PROCEDURE

Once again, in order to insure that the subjects perceived a personal relevancy for the group choice decisions they would make, the experiment was run in a group context. This was done in the same way as in Experiment 1, by dividing the experimental procedures into three phases.

Subjects arrived at the laboratory at ten minute intervals. When the subjects entered the first room of the laboratory they were seated among other subjects, who were

already working on questionnaires, and were given a packet of the paper-and-pencil measures. After reading the introductory instructions, the subjects completed, in order, the revised scale for ambiguity tolerance (MacDonald, 1970), the "management style" questionnaire, Pettigrew's (1958) Category Width scale, and the "dating behavior" questionnaire.

As each subject completed the questionnaires, the experimenter collected the materials, and "scored" the dating and management style instruments, and gave the subject two cards, the first was labeled dating behavior, the second, management style. The cards contained a (predetermined) subject "score", subject number, and an area for "experimenter's use only". The subject was escorted to the second room to continue the experiment.

In the second part of the experiment, each subject worked individually with only an experimenter in the room. He or she was told that the experimenter was constructing potential discussion groups. It was explained to the subject that we had developed a system in which we attempted to give as many people as possible the type of discussion group they would prefer. The subjects were told that they would be choosing the people with whom they

prefer to work in group discussions of dating behavior and management style.

As in Experiment 1, each subjects' score on the dating and management scales were interpreted for them. When the subject understood the relationship among the scores, he or she was presented with a selection of "others" to choose as preferred members in hers or his discussion group. The score of each potential member was presented on cards similar to those given the subject at the end of the first part of the experiment (labeled either dating or management style).

There were two group construction tasks in the second part of the experiment. In the first task, the scores of eight other potential group members were presented and the subject was asked to choose four with whom he or she would most prefer to work. These eight other members represented a variety of scores, and allowed the subject to build a group with a broad or narrow range, and a more or less ambiguous membership.

In the second task the subject was presented the scores of fifteen other potential group members. The subject was asked to select eight potential group members from this set. The maximum and minimum possible breadth

available in the second group construction task was the same as the maximum and minimum breadth available in the first group construction task. The maximum and minumum possible standard deviations for both the large and small groups were within 1 pkint of each other.

For each subject, three measures were obtained based on the characteristics of the group members they had selected: The range (an indicator of breadth; high score minus low score), the variability within the group membership (an indicator of ambiguity), and the mean similarity deviation (an indicator of mean similarity; the difference between the subject's reported score and the mean score of the group they constructed, taken as an absolute value).

Finally, each subject was directed to the third room of the experiment. There, with other subjects, they completed the verbal subscale of the Shipley-Hartford Intelligence scale (Sines, 1958), the efficacy of the manipulation was assessed, and they were debriefed.

RESULTS

The subjects were again assigned to groups of broad or narrow categorizers and AT or AIT persons by means of a quartile split. The high and low scores in each condition were the same as those in Experiment 1. This resulted in ten subjects per cell. Shipley-Hartford verbal scores did not impact on the results, and thus, only the 2 x 2 x 2, CW x AT x group size, fixed model analyses of variance are reported below.

CONSTRUCTED GROUP RANGE

The mean range of the groups constructed by subjects are given in table 4. There were significant main effects for size of group and subjects' category width.

Insert Table 4 about here

Broad categorizers consistently built discussion groups which represented a broader range of attitude scores ($\underline{M}$ = 33.825) while narrow categorizers built groups of relatively narrow dimensions ($\underline{M}$ = 25.925), $\underline{F}(1,36)$ = 16.60, $\underline{p}.<0.001$.

The larger the group which subjects were asked to construct, the broader the range of members' attitudes they selected, $\underline{F}(1,36)$ = 13.90, $\underline{p}.<0.001$. This was true regardless of cognitive style.

WITHIN GROUP DEVIATION

The mean group deviation scores (A measure of ambiguity) are given in Table 5.

Insert Table 5 about here

As we have already noted, the standard deviation of the groups constructed by subjects were not independent of the range. There was only one significant effect for deviation scores. The main effect for CW indicated that broad categorizers constructed groups which had greater diversity among members ($\underline{M}$ = 12.260) than the groups constructed by narrow categorizers ($\underline{M}$ = 9.295), $\underline{F}(1,36)$ =

13.68, $p < 0.001$.

MEAN SIMILARITY DEVIATION

The mean similarity deviation represents the absolute difference between the arithmetic mean of the group constructed by a subject (excluding the subject's score), and the score reported to the subject as his or her own. For example, if subjects who were broad categorizers wished to explore the limits of their category without increasing ambiguity (Broad CW, AIT), they could construct a group including only members who were consistently (in the same direction) divergent from their own scores. This would create a large mean similarity deviation independent of within group variability. Table 6 shows the means of the mean deviation scores for subjects.

Insert Table 6 about here

No main or interaction effects approached significance. This lack of effect for CW is not surprising given the very wide range which broad categorizers utilized and the relatively restricted range used by narrow categorizers.

DISCUSSION

EXPERIMENT ONE

Considering first the dimension category width, in Experiment 1 we found strong support for the hypothesis that reference group selection is mediated by diversity in group membership and the general tendency of a person to accept such diversity. Category width strongly influences selection of a reference group. Pettigrew (1967) has suggested that people will differ in their latitude of acceptance as a function of their category width. It is clear that broad categorizers have a greater latitude of acceptance, and a broader perspective of the types of people who serve as similar other for evaluative social comparison. Category width determines the acceptable boundary conditions within which issues of ambiguity become salient.

Turning to ambiguity tolerance, a similar pattern of results is evident. Within the boundaries delineated by the style category width, subjects selected groups based on the relative homogeneity/heterogeneity of the group. People high in ambiguity tolerance selected groups of greater diversity. Those low in ambiguity tolerance opted

for groups of less diversity. In much the same way as category width, tolerance of ambiguity modified the individuals' perception of what can be an acceptable evaluative comparison group.

The data permit us to assert that judgments of similarity, for the purpose of a social comparison, are internally mediated. They are in part based upon the individuals' cognitive styles. These judgments are reflected in subjects' choices of comparison group.

The data regarding subjects' expression of "overall similarity" indicate that this internal standard does not distort subjects' understanding of the objective reality. No differences in the similarity ratings were attributable to CW or AT dimensions. Likewise, subjects' perception of quality of the choices available also failed to show differences related to cognitive style. Such findings lend support to our expectations that ambiguity tolerant or intolerant, and broad or narrow categorizers would select reference groups in accord with the similarity predictions derived from Festinger's model. These group affiliation preferences are based on a subject's "goodness of fit" judgments. They are not necessarily based on traditional, experimentally contrived definitions of similarity.

One important addition to our observations of how category width predicts choice of comparison reference is the apparent drive-like nature of this dimension. Category width does more than set limits identifying an acceptable comparison. If category width simply identified a latitude of acceptance, then broad categorizers would have had an equal likelihood of selecting either narrowly or broadly divergent groups. If those who were broad categorizers considered all options equally satisfying (within their latitude of acceptance), the selection of comparison group would have been more highly influenced by issues of ambiguity. This was not the case however. Broad categorizers were far more likely to select a group which fully explored the boundaries of their category. Although Pettigrew (1958, 1982) has not presented category width as being drive-like in nature, it seems quite reasonable to assert, that at least with regard to issues of social comparison, category width exhibits drive-like properties. Dimensions of category width direct the selection (and as we will soon discuss, the construction) of reference groups.

In combination, the drive-like properties of category width and ambiguity tolerance would seem to conflict among

those people who are either broad categorizers, and low in ambiguity tolerance, or narrow categorizers, who are high in ambiguity tolerance. Our data indicate that the relative importance of these styles varied as a function of group size. The effect of group size was not limited to dimensions of ambiguity tolerance as we had earlier predicted. When the potential reference group had fewer members, people tended to select a moderately diverse group. In smaller groups, people chose the middle road, neither violating nor fulfilling the drives related to breadth and ambiguity. However, when the group was larger and potentially more impersonal, people selected groups of greater diversity.

If the group size ensured some degree of anonymity, one cognitive style became dominant. As group membership increased the selection of a reference group was governed by that cognitive style which exerted a drive for greater diversity. For conditions relating to a self evaluative function, both category width and ambiguity tolerance dimensions appear to be equally important for selection of a reference group. One style will exert more control than the other only when selecting from larger groups.

EXPERIMENT TWO

The contribution of cognitive style to the construction of comparison groups differed markedly from situations involving group selection. Experiment 2 required that the subject select potential group members. In measures of range, variability, and mean deviation, the style ambiguity tolerance had no significant effect. There were, however, highly significant findings related to category width.

Narrow categorizers constructed groups with a more restricted latitude of acceptance. Concomitant with these effects for range of membership, groups constructed by narrow categorizers also had less variability.

Experiment 2 indicated that, category width alone was the dominant factor in predicting group structure. In group construction tasks, people actively pursue organization which fits their category width style. It appears likely that, the process of social comparison which relates to group affiliation is different in some basic way, from that related to group formation. Two different aspects of self evaluative motivations are apparent. When joining an established group, subjects' used all of the information related to their "goodness of

fit" with the groups. When subjects built a reference group, only dimensions relating to latitude of acceptance appeared to be important.

CONCLUSION

In summary, our research supports the following conclusions: (1) It is useful to classify groups according to dimensions of diversity, since these dimensions are used by individuals when joining or forming reference groups. (2) The cognitive styles ambiguity tolerance and category width, together, predict the types of groups an individual is likely to join. (3) When individuals construct new reference groups, category width is a dominant factor in the selection of members. It helps determine the latitude of the membership. (4) The principles governing the selection of a reference group are different from those governing the construction of a reference group. (5) When the concept of "similar other" is extended to include the dimensions of ambiguity tolerance and category width, our model follows the predictions of Festinger's (1954a) theory of social comparison. (6) Category width exhibits a drive-like function in self evaluative, social comparison situations.

This research challenges the concept of group structure as it is traditionally used to describe similarity in social comparison research. We have taken

the construct of similarity beyond the simple concept of a mean similarity. Similarity is described as a subjective, rather than objective variable, based on individual differences in cognitive style. By detailing the three structural group properties of breadth, ambiguity, and mean similarity, we have more completely described the constructs of groups which relate to dimensions of similarity. Further, we have detailed the ways in which individuals use these dimensions in social comparison.

If one knows the style variables that relate to perception of a potential reference group, and can identify the several relevant characteristics of the available groups, it is possible to predict the affiliative tendencies of individuals. Conversely, we can use information about group structure to identify the likely style charactersitics of group members.

In the social world there are a number of groups which can easily be classified according to these structural characteristics. For example, the latitude of acceptance in an encounter group would most likely be greater than the latitude of acceptance in a paramilitary organization. Given that different types of groups appeal to different types of people, it is possible to predict

the structural properties of a group necessary to attract certain individuals. Such information may be useful in a wide variety of situations, including developing viable alternative youth groups, alternative programmming for delinquent youth and assessing the appeal of existing social groups (c.f., Empey & Lubeck, 1968), or organization work groups (Thomas & Ward, 1983). By identifying the dominant style characteristics within a group it also may be possible to construct information formats and types that would be most influential within targeted groups (Reardon & Dickey, in press).

Although, we caution that replacing the simple concept "similarity", in favor of a structurally defined "perceived similarity" does have limitations (For instance, the function of cognitive styles is not equivalent in the situations of group formation and group affiliation), and further work on the qualitative aspects of the selection remains to be done. For example, it is important to know why subjects selected as they did. We do believe that our basic reformulation of what has been a more limited, narrowly defined, concept labeled "similarity" will affect issues other than group formation and self evaluation. Our revision of the interpersonal

similarity dimension could be used to extend and revise models of persuasion, affiliation and attraction, and leadership.

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Table 1

Reference-Group Selection

Group Diversity

C.W.	Narrow		Broad		
A.T.	Intolerant	Tolerant	Intolerant	Tolerant	M
Sm. Group	1.60	2.60	2.60	3.70	2.63
Lg. Group	1.70	3.60	3.10	3.70	3.03
M	1.65	3.10	2.85	3.70	2.83

Note: Figures are based on choice of group, where 1 indicates the least diverse group, and 4 the most diverse.

Table 2

Most Similar Group Selection

C.W.	Narrow		Broad		
A.T.	Intolerant	Tolerant	Intolerant	Tolerant	M
Sm. Group	1.10	1.00	1.30	1.20	1.15
Lg. Group	1.40	1.30	1.20	1.80	1.42
M	1.25	1.15	1.25	1.50	1.29

Note: Figures are based on the group which subjects identified as most similar to themselves.

Table 3

Amount of Choice

C.W.	Narrow		Broad		
A.T.	Intolerant	Tolerant	Intolerant	Tolerant	M
Sm. Group	4.40	3.80	4.30	4.40	4.23
Lg. Group	4.20	4.30	4.30	3.80	4.15
M	4.30	4.05	4.30	4.10	4.19

Note: Based on a scale of 1-6 where 1 represents little or no real choice, and 6 a great deal of choice.

Table 4

Range of Constructed Group

High Minus Low Score

C.W.	Narrow		Broad		
A.T.	Intolerant	Tolerant	Intolerant	Tolerant	M
Sm. Group	24.30	24.10	28.80	33.50	27.68
Lg. Group	28.20	27.10	36.40	36.60	32.08
M	26.25	25.60	32.60	35.05	29.88

Note: based on the difference between the high and low scores of members within subject constructed groups.

Table 5

Within Group Diversity

Mean Deviations

C.W.	Narrow		Broad		
A.T.	Intolerant	Tolerant	Intolerant	Tolerant	M
Sm. Group	9.06	9.18	10.60	12.82	10.41
Lg. Group	10.70	8.91	11.97	13.65	11.14
M	9.55	9.04	11.28	13.24	10.78

Table 6

Absolute Differences Between Subject Score and Group Mean

C.W.	Narrow		Broad		
A.T.	Intolerant	Tolerant	Intolerant	Tolerant	M
Sm. Group	2.15	2.90	2.50	1.70	2.32
Lg. Group	3.42	4.28	1.67	2.85	3.05
M	2.78	3.59	2.10	2.78	2.69

FOOTNOTES

1 There are a number of social evaluation and judgement theories which incorporate cognitively mediated standards (c.f. Thibaut & Kelley, 1959; Upshaw, 1969)

2 In an investigation of individual-to-individual referent selection, Gruder (1977) has shown that, when subjects know the range of scores on an attitude dimension, they will engage in social comparison. If range setting information is not known, but is available, they will seek this information.

3 In an earlier norming experiment, the correlation between category width and ambiguity tolerance among members of our standard subject pool was determined as $r < 0.10$ ($N = 115$).

APPENDIX A

INTRODUCTION

DO NOT CONTINUE UNTIL YOU HAVE READ THIS PAGE COMPLETELY

The experiment you are about to participate in is intended to help us understand group behavior and its importance in individual evaluation. In the sections which follow you will be asked to complete a small variety of checklists and surveys. Among other things, one of these surveys will evaluate your personal beliefs about dating, and another will measure your opinion regarding effective management of people. Once you have completed the questionnaires in this packet, your dating and management styles will be scored so they can be used in constructing discussion groups on these topics.

Instructions for each task are provided in that section. Read the instructions carefully, and feel free to ASK THE EXPERIMENTER for help if you have any questions along the way. Once you have finished one section of the experiment, continue on to the next section. Do not return to any section that you have already completed.

Before you begin, please read and complete the consent form at the bottom of this page. Do not continue until you have filled out this form; once you have signed the form you can turn the page and begin the experiment. Thank you for your help.

AGREEMENT TO PARTICIPATE

I, the undersigned, hereby agree to participate in the experiment titled "Group Discussion," sponsored by the Department of Psychology at the University of Oklahoma, 1983. I understand that I may withdraw from the experiment at any time without penalty. This agreement does not waive any of my legal rights.

Date_____ Signature_____

ID Number_____

Please do not spend too much time on the following items. There are no right or wrong answers and, therefore, your first response is important. Mark each statement on the data processing sheet provided according to how much you agree or disagree with it. Please mark every one according to the following code:

1 = I agree very much	4 = I disagree a little
2 = I agree on the whole	5 = I disagree on the whole
3 = I agree a little	6 = I disagree very much

_____ 1. A problem has little attraction for me if I don't think it has a solution.

_____ 2. I am just a little uncomfortable with people unless I feel that I can understand their behavior.

_____ 3. There's a right way and a wrong way to do almost everything.

_____ 4. I would rather bet 1 to 6 on a long shot than 3 to 1 on a probable winner.

_____ 5. The way to understand complex problems is to be concerned with their larger aspects instead of breaking them into smaller pieces.

_____ 6. I get pretty anxious when I am in a social situation over which I have no control.

_____ 7. Practically every problem has a solution.

_____ 8. It bothers me when I am unable to follow another person's train of thought.

_____ 9. I have always felt that there is a clear difference between right and wrong.

_____10. It bothers me when I don't know how other people react to me.

_____11. Nothing gets accomplished in this world unless you stick to some basic rule.

_____12. If I were a doctor, I would prefer the uncertainties of a psychiatrist to the clear and definite work of someone like a surgeon or X-ray technician.

_____13. Vague and impressionistic pictures really have little appeal for me.

_____14. If I were a scientist, it would bother me that my work would never be completed (because science will always make new discoveries).

_____15. Before an examination, I feel much less anxious if I know how many questions there will be.

_____15. The best part of working a jigsaw puzzle is putting in that last piece.

_____17. Sometimes I rather enjoy going against the rules and doing things I'm not supposed to do.

_____18. I don't like to work on a problem unless there is a possibility of coming out with a clear cut and unambiguous answer.

_____19. I like to fool around with new ideas, even if they turn out later to be a total waste of time.

_____20. Perfect balance is the essence of all good composition.

In this test there are twenty statements, each of which is followed by two questions. Read the statements carefully, then answer each question to the best of your ability. It is important that you answer each question. Select the answer which you feel is most accurate among those listed, and circle it's number.

It has been estimated that the average width of windows is 34 inches. What do think

a. is the width of the widest window...
   1. 1,343 inches
   2. 341 inches
   3. 48 inches
   4. 81 inches

b. is the width of the narrowest window...
   1. 3 inches
   2. 18 inches
   3. 11 inches
   4. 1 inch

Ornithologists believe that the best guess of the average speed of birds in flight would be about 17 miles per hour. What do you think...

a. is the speed in flight of the fastest bird...
   1. 25 m.p.h.
   2. 105 m.p.h.
   3. 73 m.p.h.
   4. 34 m.p.h.

b. is the speed in flight of the slowest bird...
   1. 10 m.p.h.
   2. 2 m.p.h.
   3. 12 m.p.h.
   4. 5 m.p.h.

The average length of whales in the Atlantic Ocean has been estimated by zoologists to be roughly 65 feet. What do you think:

a. is the length of the longest whale in the Atlantic Ocean...
   1. 120 ft.
   2. 190 ft.
   3. 86 feet
   4. 75 feet

b. is the length of the shortest whale in the Atlantic Ocean...
   1. 6 ft.
   2. 43 ft.
   3. 52 ft.
   4. 21 ft.

Shipping authorities have calculated that the average weight of merchant ships registered with the U.S. Maritime Commission in 1946 was 5,705 tons. What do you think:

a. is the weight of the heaviest ship registered with the commission...
   1. 10,500 tons
   2. 62,000 tons
   3. 23,000 tons
   4. 7,500 tons

b. is the weight of the lightest ship registered with the commission...
   1. 3,900 tons
   2. 1,100 tons
   3. 2,700 tons
   4. 2 tons

Weather officials report that during this century Washington, D.C. has received an average rainfall of 41.1 inches annually. What do you think:

a. is the largest amount of rain that Washington has received in a single year during this century...
   1. 82.4 inches
   2. 45.8 inches
   3. 63.7 inches
   4. 51.2 inches

b. is the smallest amount of rain that Washington has received in a single year during this century...
   1. 20.2 inches
   2. 36.3 inches
   3. 9.9 inches
   4. 29.7 inches

An average of 58 ships entered or left New York harbor daily during the period from 1950 through 1955. What do you think:

a. was the largest number of ships to enter or leave New York in a single day during this period...
   1. 69 ships
   2. 153 ships
   3. 76 ships
   4. 102 ships

b. was the smallest number of ships to enter or leave New York in a single day during this period...
   1. 34 ships
   2. 3 ships
   3. 16 ships
   4. 43 ships

For the past twenty years, Alaska's population has increased an average 3,210 people per year. What do you think:

a. was the greatest increase in Alaska's population in a single year during these twenty years...
   1. 6,300
   2. 21,500
   3. 3,900
   4. 4,800

b. was the smallest increase in Alaska's population in a single year during these twenty years...
   1. 470
   2. 1,960
   3. 990
   4. 2,520

Boating experts estimate that the average speed of all sailing craft in America is around 4.1 knots. What do you think:

a. is the speed of the fastest sailing boat in America...
   1. 8.2 knots
   2. 30.7 knots
   3. 5.9 knots
   4. 21.3 knots

b. is the speed of the slowest sailing boat in America...
   1. 3.3 knots
   2. 0.6 knots
   3. 2.2 knots
   4. 1.2 knots

Book review editors guess that around 300 new American novels have appeared annually since World War II. What do you think:

a. is the largest number of novels to be published in America in a single year during this period...
   1. 380 novels
   2. 485 novels
   3. 870 novels
   4. 620 novels

b. is the smallest number of novels to be published in America in a single year during this period...
   1. 145 novels
   2. 205 novels
   3. 90 novels
   4. 260 novels

Between 1900 and 1940 there was an average of 48 lynchings per year in the United States. What do you think:

a. was the largest number of lynchings in any one year during this period in the United States...
   1. 79
   2. 63
   3. 53
   4. 135

b. was the smallest number of lynchings in any one year during this period in the United States...
   1. 1
   2. 11
   3. 33
   4. 19

It has been calculated that the average time for all trains in 1953 from New York City to Washington, D.C. was 275 minutes (4 hours and 45 minutes). What do you think:

a. was the time of the slowest train from New York City to Washington in 1953...
   1. 337 min.
   2. 304 min.
   3. 396 min.
   4. 483 min.

b. was the time of the fastest train from New York City to Washington in 1953...
   1. 236 min.
   2. 202 min.
   3. 268 min.
   4. 145 min.

The average number of births in the world per day during 1955 has been computed to be 27,440. What do you think:

a. was the largest number of births in the world in any one day during 1955...
   1. 36,501
   2. 28,207
   3. 49,276
   4. 30,023

b. was the smallest number of births in the world in any one day during 1955...
   1. 26,340
   2. 24,725
   3. 14,330
   4. 19,704

When all of the world's written languages are considered, linguists tell us that the average number of verbs per language must be somewhere around 15,000. What do you think:

a. is the largest number of verbs in any single language...
   1. 21,000
   2. 18,000
   3. 50,000
   4. 30,000

b. is the smallest number of verbs in any single language...
   1. 1,000
   2. 13,000
   3. 3,000
   4. 10,000

The average muzzle to tail length of a sample of 1,000 German Shepherd dogs is 40.3 inches. What do you think:

a. is the length of the longest Shepherd dog in the sample...
   1. 60.4 inches
   2. 47.8 inches
   3. 44.1 inches
   4. 54.2 inches

b. is the length of the shortest Shepherd dog in the sample...
   1. 34.5 inches
   2. 25.4 inches
   3. 19.7 inches
   4. 36.9 inches

The average population of South American countries is approximately 8.6 million people each. What do you think:

a. is the population of the most populated country in South America...
   1. 11.2 million
   2. 54.7 million
   3. 23.6 million
   4. 129.1 million

b. is the population of the least populated country in South America...
   1. 7,000
   2. 6.2 million
   3. 2.4 million
   4. 29,000

A Stanford University home economist has estimated that the average American spends around 55 minutes of his day eating. What do you think:

a. is the longest eating time of any single American...
   1. 185 minutes
   2. 125 minutes
   3. 245 minutes
   4. 90 minutes

b. is the shortest eating time of any single American...
   1. 16 minutes
   2. 4 minutes
   3. 38 minutes
   4. 27 minutes

In 1946 the average number of births per state was 68,000. What do you think:

a. was the highest number of births in a single state...
   1. 87,000
   2. 122,000
   3. 71,000
   4. 254,000

b. was the lowest number of births in a single state...
   1. 29,000
   2. 57,000
   3. 14,000
   4. 900

Immediately after World War II the average number of submarines owned by the largest seven navies in the world was 58. What do you think:

a. was the largest number of submarines owned by one of these navies...
   1. 159
   2. 91
   3. 118
   4. 69

b. was the smallest number of submarines owned by one of these navies...
   1. 22
   2. 9
   3. 36
   4. 47

The average number of churches per religious denomination in the United States is estimated to be 511. What do you think:

a. is the largest number of churches of a single religious denomination in the U.
   1. 4,833
   2. 757
   3. 1,219
   4. 39,801

b. is the smallest number of churches of a single religious denomination in the U.S.A....
   1. 313
   2. 146
   3. 1
   4. 23

In the years 1916 through 1946, according to the U.S. Weather Bureau there was an average of 140 tornadoes a year in the United States. What do you think:

a. was the largest number of tornadoes in a single year in the United States during this period...

1. 154
2. 243
3. 312
4. 197

b. was the smallest number of tornadoes in a single year in the United States during this period...

1. 103
2. 122
3. 61
4. 28

DATING BEHAVIOR

The following scale is designed to evaluate your personal preferences/ selectivity in choosing a dating partner. You are asked to indicate the relative desirability (relative value) of each of the several traits which are listed below. Use the scale of one to six to indicate how desirable each trait is when considering the type of person you would date. Use the ONE to indicate a trait which is strongly DESIRABLE, the SIX to indicate a strongly UNDESIRABLE trait, and the numbers in between to show various degrees of desirability. Consider each trait carefully, but do not take too much time on any one item.

Use the scale as follows:
1 STRONGLY DESIRABLE
2 MODERATELY DESIRABLE
3 SOMEWHAT DESIRABLE
4 SOMEWHAT UNDESIRABLE
5 MODERATELY UNDESIRABLE
6 STRONGLY UNDESIRABLE

LOYAL	1 2 3 4 5 6
POSSESSIVE	1 2 3 4 5 6
WITTY	1 2 3 4 5 6
SHREWD	1 2 3 4 5 6
IRRATIONAL	1 2 3 4 5 6
FASHIONABLE	1 2 3 4 5 6
EDUCATED	1 2 3 4 5 6
SPENDTHRIFT	1 2 3 4 5 6
AMIABLE	1 2 3 4 5 6
SENTIMENTAL	1 2 3 4 5 6
UNTRUTHFUL	1 2 3 4 5 6
DEPENDENT	1 2 3 4 5 6
HOSTILE	1 2 3 4 5 6
SELF-RIGHTEOUS	1 2 3 4 5 6
THOUGHTFUL	1 2 3 4 5 6
SUSPICIOUS	1 2 3 4 5 6
GENEROUS	1 2 3 4 5 6
LOUDMOUTHED	1 2 3 4 5 6

MANAGEMENT STYLE

Most people have had jobs (summer, part time, etc.) and have had to deal with a supervisor or boss. In the future we will again have to deal with a boss, or may ourselves be a boss or supervisor.

The following scale is designed to evaluate your personal preferences for management style. You are asked to indicate the relative desirability (relative value) of each of the several traits which are listed below. Use the scale of one to six to indicate how desirable each trait is in an effective, efficient supervisor or boss. Use a ONE to indicate a trait which is strongly DESIRABLE, the SIX to indicate a strongly UNDESIRABLE trait, and the numbers in between to show various degrees of desirability. Consider each trait carefully, but do not take too much time on any one item.

Use the scale as follows:
1 STRONGLY DESIRABLE
2 MODERATELY DESIRABLE
3 SOMEWHAT DESIRABLE
4 SOMEWHAT UNDESIRABLE
5 MODERATELY UNDESIRABLE
6 STRONGLY UNDESIRABLE

CONSIDERATE	1 2 3 4 5 6
TEMPERAMENTAL	1 2 3 4 5 6
STERN	1 2 3 4 5 6
METHODICAL	1 2 3 4 5 6
UNFRIENDLY	1 2 3 4 5 6
TOUCHY	1 2 3 4 5 6
ACCURATE	1 2 3 4 5 6
SELF-CRITICAL	1 2 3 4 5 6
RASH	1 2 3 4 5 6
REALISTIC	1 2 3 4 5 6
MALICIOUS	1 2 3 4 5 6
BLUNT	1 2 3 4 5 6
RESPONSIBLE	1 2 3 4 5 6
GRATEFUL	1 2 3 4 5 6
OVERCONFIDENT	1 2 3 4 5 6
TRUTHFUL	1 2 3 4 5 6
NARROW-MINDED	1 2 3 4 5 6
SYSTEMATIC	1 2 3 4 5 6

READ CAREFULLY

This completes this portion of the experiment. The next part of the experiment takes place in another room. Before you can move on to this next part of the research project, the experimenter will have to score your management style and dating preference questionnaires. These will be used for selecting potential members for discussion groups. It will take just a moment to score these items, and the experimenter will do this as soon as possible. After scoring these items, they will direct you to another room where you will complete the experiment. Please CLOSE YOUR FILE (This will signal the experimenter that you are finished), and WAIT for the experimenter to give you further directions. THANK YOU.

In the test below, the first word in each line is printed in capital letters. Opposite it are four other words. Draw a line through the one word which means the same thing, or most nearly the same thing, as the first word. A sample has been worked out for you. If you don't know, guess. Be sure to draw a line through the word in each line that means the same thing as the first word.

LARGE	red	big	silent	wet
TALK	draw	eat	speak	sleep
PERMIT	allow	sew	cut	drive
PARDON	forgive	pound	divide	tell
COUCH	pin	eraser	sofa	glass
REMEMBER	swim	recall	number	defy
TUMBLE	drink	dress	fall	think
HIDEOUS	silvery	tilted	young	dreadful
CORDIAL	swift	muddy	leafy	hearty
EVIDENT	green	obvious	skeptical	afraid
IMPOSTER	conductor	officer	book	pretender
MERIT	deserve	distrust	fight	separate
FASCINATE	welcome	fix	stir	enchant
INDICATE	defy	excite	signify	bicker
IGNORANT	red	sharpen	uninformed	precise
FORTIFY	submerge	strengthen	vent	deaden
RENOWN	length	head	fame	loyalty
NARRATE	yield	buy	associate	tell
MASSIVE	bright	large	speedy	low
SMIRCHED	stolen	pointed	remade	soiled
HILARITY	laughter	speed	grace	malice
SQUANDER	tease	belittle	cut	waste
CAPTION	drum	ballast	heading	ape
FACILITATE	help	turn	strip	bewilder
JOCOSE	humorous	paltry	fervid	plain
APPRISE	reduce	strew	inform	delight
RUE	eat	lament	dominate	cure
DENIZEN	senator	inhabitant	fish	atom
DIVEST	dispossess	intrude	rally	pledge
AMULET	charm	orphan	dingo	pond
INEXORABLE	untidy	involatile	rigid	sparse
SERRATED	dried	notched	armed	blunt
LISSOM	moldy	loose	supple	convex
MOLLIFY	mitigate	direct	pertain	abuse
PLAGIARIZE	appropriate	intend	revoke	maintain
ORIFICE	brush	hole	building	lute
QUERULOUS	maniacal	curious	devout	complaining
PARIAH	outcast	priest	lentil	locker
ABET	waken	ensue	incite	placate
TEMERITY	rashness	timidity	desire	kindness
PRISTINE	vain	sound	first	level

POST EXPERIMENTAL QUESTIONNAIRE

Please mark each question according to the following code:

1 = I agree very much	4 = I disagree a little
2 = I agree on the whole	5 = I disagree on the whole
3 = I agree a little	6 = I disagree very much

( ) 1. I gave serious consideration to all questions I answered.

( ) 2. I gave the answers I thought the experimenter wanted instead of the ones I truly believed.

( ) 3. I understood that I may be called later to join a discussion group.

( ) 4. In hindsight, I would probably sign up for this experiment again.

( ) 5. The experimenters could be trusted, and made me comfortable with all parts of the experiment.

( ) 6. The instructions were clear and straightforward.

( ) 7. I would consider joining one of the discussion groups if I received additional experimental credit.

( ) 8. If I were to be involved in a discussion group, I would prefer it to be the one I selected.

READ CAREFULLY

Congratulations! and Thank you. You have completed the experiment with this last page. This final section is intended to let you know a little more about the things we asked you to do.

During the experiment you completed several paper and pencil questionnaires. Two questionnaires that we are particularly interested in are the dating and management style questionnaires. These are new surveys that we are using for the first time here at the University of Oklahoma. At this time we do not know what a truely "average" or unusual score will turn out to be. We do know that the scales are non-linear. That means, for example, that you cannot equally compare the difference between scores of 40 and 50, with the difference for scores of 50 and 60. The words selected for this checklist have been tested on more than one thousand subjects at universities across the nation.

Other questionnaires you completed were designed to give us the following information: 1 Your general tendency to either over generalize or under generalize. 2 Your preference for situations which are either ambiguous and debatable, or that are clear cut, unambiguous. 3 The last, a "vocabulary" survey will be used to statistically control your scores on the other surveys (a co-variant analysis technique).

The measures mentioned above will be used 1) for evaluating discussion group preferences, and 2) for assigning students to discussion groups. In the future you MAY be called and asked to volunteer for a discussion group. You are not obligated to comply in any way. As of now, the chance of any one person being called for a discussion group is rather small. Those who participate in this experiment later next year are more likely to be asked to join such a group.

Finally, we ask that you DO NOT share the specific details of this experiment with your friends, as we hope to continue our research here for several months to come.We want to thank you for your time and help.

Before leaving the experiment be certain you recieve an experimental credit slip from your experimenter. Thanks again.

APPENDIX B

APPENDIX I

PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION
Cover Page

FOR CONSIDERATION BY NSF ORGANIZATIONAL UNIT (Indicate the most specific unit known, i.e. program, division, etc.)	IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? Yes ___ No XX ; IF YES, LIST ACRONYM(S):
Data support services section in group and social research.	

PROGRAM ANNOUNCEMENT/SOLICITATION NO.	CLOSING DATE (IF ANY):

NAME OF SUBMITTING ORGANIZATION TO WHICH AWARD SHOULD BE MADE (INCLUDE BRANCH/CAMPUS/OTHER COMPONENTS):
University of Oklahoma

ADDRESS OF ORGANIZATION (INCLUDE ZIP CODE):
Norman, OK. 73019

TITLE OF PROPOSED PROJECT:
Similarity and Cognition in Social Comparison

REQUESTED AMOUNT	PROPOSED DURATION	DESIRED STARTING DATE
	Nine month contract	October 1984

PI/PD NAME AND SOCIAL SECURITY NO. (SSN)*	PI/PD PHONE NO.
Richard Reardon (--- -- ----)	405 325-4511

PI/PD DEPARTMENT	PI/PD ORGANIZATION
Psychology	University of Oklahoma

ADDITIONAL PI/PD AND SSN*	ADDITIONAL PI/PD AND SSN*
Wanda E. Ward (--- -- ----)	
ADDITIONAL PI/PD AND SSN*	ADDITIONAL PI/PD AND SSN*

FOR RENEWAL OR CONTINUING AWARD REQUEST, LIST PREVIOUS AWARD NO.: NA	SUBMITTING ORGANIZATION IS ___ IS NOT XX A SMALL BUSINESS CONCERN (see CFR Title 13, Part 121 for definitions).

*Submission of social security numbers is voluntary and will not affect the organization's eligibility for an award. However, they are an integral part of the NSF information system and assist in processing the proposal. SSN solicited under NSF Act of 1950, as amended.

CHECK APPROPRIATE BOX(ES) IF THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW:

☐ Animal Welfare	☒ Human Subjects	☐ National Environmental Policy Act
☐ Endangered Species	☐ Marine Mammal Protection	☐ Research Involving Recombinant DNA Molecules
☐ Historical Sites	☐ Pollution Control	☐ Proprietary and Privileged Information

PRINCIPAL INVESTIGATOR/ PROJECT DIRECTOR	AUTHORIZED ORGANIZATIONAL REP.	OTHER ENDORSEMENT (optional)
NAME: Richard Reardon	NAME:	NAME: Wanda E. Ward
SIGNATURE:	SIGNATURE:	SIGNATURE:
TITLE: Assistant Professor	TITLE:	TITLE: Assistant Professor
DATE:	DATE:	DATE:

APPENDIX II Project Summary

University of Oklahoma
Department of Psychology
455 W. Lindsey, Norman OK.

Principle Investigators Richard Reardon and Wanda E. Ward

Perceived Similarity and the Social comparison Process.

ABSTRACT:

According to social comparison theory, when the motive to self evaluate predominates, people actively seek the opportunity to make comparisons of their attitudes and abilities with the most similar other available. Research of individual-to-individual comparison processes has demonstrated that externally defined dimensions of "similarity" are effective predictors of one's selection of a comparison reference. This proposal is designed to extend this basic finding to the individual-to-group comparison process. Relevant individual difference dimensions will also be employed to examine possible cognitive style involvements in social comparison processes.

Ambiguity tolerance (AT) identifies a person's tendency to either seek out or avoid ambiguous situations and problems. Category width (CW) identifies a person's tendency to make consistent errors of inclusion or exclusion in the creation of group boundaries. By identifying the structural properties of groups which relate to breadth and homogeneity of membership, we can demonstrate the impact of cognitive styles (CW and AT) in the selection of comparison groups.

In experiment one the subjects will be given information about themselves and others along some attitude dimension. These "others" comprise four groups, each group representing different levels of breadth and homogeneity along the attitude dimension. Given this information, subjects will then be asked to select a group for discussion of the attitude topic. In experiment two the "others" have not been assigned to groups. The subject will be asked to construct the group within which they would prefer to work. It is predicted that subjects will affiliate with groups that are consistent with their cognitive style rather than groups identified as similar by a dimension of mean similarity.

APPENDIX II

NOTICE OF RESEARCH PROJECT

SCIENCE INFORMATION EXCHANGE

SMITHSONIAN INSTITUTION

NATIONAL SCIENCE FOUNDATION

PROJECT SUMMARY

SIE PROJECT NO
NSF AWARD NO.

FOR NSF USE ONLY			
DIRECTORATE/DIVISION	PROGRAM OR SECTION	PROPOSAL NO.	F.Y.

NAME OF INSTITUTION (INCLUDE BRANCH/CAMPUS AND SCHOOL OR DIVISION)

University of Oklahoma

Norman, OK

ADDRESS (INCLUDE DEPARTMENT)

Richard Reardon, and Wanda E. Ward
Department of Psychology
University of Oklahoma
Norman, OK 73019

PRINCIPAL INVESTIGATOR(S)

Richard Reardon and Wanda E. Ward (Co-P.I.)

TITLE OF PROJECT

Similarity and Cognition in Social Comparison

TECHNICAL ABSTRACT (LIMIT TO 22 PICA OR 18 ELITE TYPEWRITTEN LINES)

According to social comparison theory, when the motivation for self evaluation predominates, people will frequently compare their attitudes and abilities with the most similar other available. Research of individual-to-individual comparison processes has shown that externally defined dimensions of similarity can be effective predictors for ones' choice of comparison reference. This proposal is intended to extend such findings more completely to individual-to-group comparisons. Individual difference dimensions will be used to examine possible cognitive style involvement in the perception of similarity dimensions.

Ambiguity tolerance (AT) identifies a person's tendency to seek out or avoid ambiguous situations. Category width (CW) identifies a person's tendency to make errors of inclusion or exclusion. By identifying the structural properties of groups which relate to breadth, and homogeneity of membership, we can demonstrate the utility of CW and AT in the choice of comparison groups. In Experiment 1, subjects will be given information about themselves and others on an attitude dimension. These "others" comprise four groups each representing different levels of breadth and homogeneity. Using this information, S' will be asked to select a group for discussion of the attitude topic. In Experiment 2, the "others" are not assigned to groups, and the Ss are asked to construct the groups. It is predicted that Ss will affiliate with groups which have membership characteristics consistent to Ss' cognitive style, even at the expense of the objective dimensions for mean similarity.

18 Elite.

1. Proposal Folder
2. Program Suspense
3. Division of Grants & Contracts
4. Science Information Exchange
5. Principal Investigator
6. Off. of Govt. & Pub. Progs.

Budget draft and budget narrative.

ORGANIZATION: University of Oklahoma

CO-PRINCIPLE INVESTIGATORS: Richard Reardon and Wanda E. Ward.

A Senior Personel:

1. Richard Reardon	9/12	.80	4200
2. Wanda E. Ward	9/12	.80	4200

B Other Personel:

3. (1.5) Graduate Students	.75 FTE	9750
5. (1)Secretarial-Clerical	.25 FTE	3500

Total Salaries and Wages (A+B)	21650
C Fringe Benefits (direct cost)	2387
D Permanent Equipment	0
E Travel	2000
F Participant Support Cost	0
G Other Direct Costs:	
1. Materials and Supplies	700
2. Publication Costs/Page charges	120
4. Computer (ADPE) Services	500
Total Other Direct Costs	820
H Total Direct Costs:	26857
I Indirect Costs (Overhead)	18480
J Total Direct and Indirect Costs	45337
K Residual Funds	0
L Amount of This Request	45337

Signatures and Typed:

PI1 Richard Reardon

PI2 Wanda E. Ward

Inst.Rep.

APPENDIX III

SUMMARY PROPOSAL BUDGET

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (MONTHS) Proposed	Granted
AWARD NO.		

ORGANIZATION: University of Oklahoma

PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR: Richard Reardon, Wanda E. Ward (Co-P.I.)

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.6. show number in brackets)	NSF FUNDED PERSON-MOS CAL.	ACAD.	SUMR.	FUNDS REQUESTED BY PROPOSER	FUNDS GRANTED BY NSF (IF DIFFERENT)
1. Richard Reardon Co-P.I.	9/12	.20		$4200	$
2. Wanda E. Ward Co-P.I.	9/12	.20		4200	
3.					
4.					
5. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET EXPLANATION PAGE)					
6. ( ) TOTAL SENIOR PERSONNEL (1-5)					
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)	9/12	.40		8400	
1. ( ) POST DOCTORAL ASSOCIATES					
2. ( ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)					
3. (2) GRADUATE STUDENTS .75FTE total				9750	
4. ( ) UNDERGRADUATE STUDENTS					
5. (1) SECRETARIAL-CLERICAL .25FTE total				3500	
6. ( ) OTHER					
TOTAL SALARIES AND WAGES (A+B)				21650	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				2387	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A+B+C)				24037	
D. PERMANENT EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $1,000. ITEMS OVER $10,000 REQUIRE CERTIFICATION)					
TOTAL PERMANENT EQUIPMENT				-0-	
E. TRAVEL 1. DOMESTIC (INCL. CANADA AND U.S. POSSESSIONS)				-0-	
2. FOREIGN				-0-	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $					
2. TRAVEL 2000					
3. SUBSISTENCE					
4. OTHER					
TOTAL PARTICIPANT COSTS				2000	
G. OTHER DIRECT COSTS				-	
1. MATERIALS AND SUPPLIES				700	
2. PUBLICATION COSTS/PAGE CHARGES				120	
3. CONSULTANT SERVICES				-0-	
4. COMPUTER (ADPE) SERVICES				500	
5. SUBCONTRACTS				-0-	
6. OTHER				7820	
TOTAL OTHER DIRECT COSTS				26857	
H. TOTAL DIRECT COSTS (A THROUGH G)				18480	
I. INDIRECT COSTS (SPECIFY)					
TOTAL INDIRECT COSTS				45337	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS GPM 233 AND 263)				-0-	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				$45337	$

PI/PD TYPED NAME & SIGNATURE*	DATE	FOR NSF USE ONLY
INST. REP. TYPED NAME & SIGNATURE*	DATE	INDIRECT COST RATE VERIFICATION: Date Checked / Date of Rate Sheet / Initials - DGC / Program

NSF Form 1030 (10-80) *Supersedes All Previous Editions*

*SIGNATURES REQUIRED ONLY FOR REVISED BUDGET (GPM 233)

Budget expansion sheet

A Senior Personnel: Vita appended.

B Other Personnel:

3. Graduate Students

The University of Oklahoma Department of Psychology recruits graduate students for Ph.D. training in experimental psychology. The remuneration rate ($6500 10/12 .5 FTE) is within departmental standards.

5. Secretarial-Clerical

This position is .25 FTE 12/12. This is a release time position for existing clerical staff; funding cycle and benefits have been established by the University of Oklahoma.

C Fringe Benefits:

Fringe benefits were determined by existing contracts and norms. The University of Oklahoma offers Fringe benefits at a rate of 22% for Faculty, 14% for Classified - secretarial positions, and 0.5% for student positions.

D Permanent Equipment:

It is the policy of the University of Oklahoma to provide incoming research faculty with their basic equipment needs. Such a policy allows us to present this funding request to the NSF without burden of basic equipment cost.

G Other Direct Costs:

1. Materials and Supplies

This item includes the cost of computer discs, disc storage devices, disc maintenance devices, printer supplies, and other computer needs. Estimates of fair market charges are from the most recent INMAC "Personal Computer Support Catalog". INMAC is an authorized supplier to the University of Oklahoma. Other basic clerical and office supplies are available at special rates through the University Purchasing Services.

2. Rate reflects average page charges for a 20 page published report. These charges may not be necessary for some publications, and will be returned as residual should this be possible.

4. This is a standard estimate for ADPE services from the University of Oklahoma.

I Indirect Costs:

The University of Oklahoma requires a 42% overhead charge for administration of grants and contracts. This fee provides grantees with a wide variety of services including; Research space, accounting administration, access to all university facilities and necessary equipment, and access to university retained consultants in statistics and ADPE.

Addendum; Equipment use report

Materials and supplies are requested in section G-1; budget expansion sheet NSF appendix III.

The experimental procedure detailed in the grant narrative is designed to incorporate computer generated stimulus materials. In this procedure, subjects will be asked to select a reference group based on information detailing attitude relations among the members of several groups. The micro-computer system will manage: (1) The calculation of group membership dimensions (2) The counter-balancing of the formats of group presentation (3) The display of these potential membership groups.

In addition to the efficient management of basic experimental procedures, the micro-computer systems will enhance the efficacy of our cover story relating to group construction.

APPENDIX IV

Current and Pending Support

The following information should be provided for each investigator and other senior personnel (see p.6). Failure to provide this information may delay consideration of the proposal.

	A	B	C	D	E*		F
	Supporting Agency	Project Title	Award Amount (or Annual Rate)	Period Covered By Award	Man-Months Or % of Effort Committed To The Project		Location Where Research Is/Will Be Performed
					ACAD.	SUMM.	
I (Name of Principal Investigator)	Richard Reardon						
A. *Current Support* List—If none, Report none	None	—	—	—	—	—	—
B. *Proposals Pending*	NSF 81-79 Grants for Scientific and Engineering						
1. List this proposal	Research.	—	—	—	—	—	—
2. Other pending proposals, including renewal applications	None	—	—	—	—	—	—
3. Proposals planned to be submitted in near future	None	—	—	—	—	—	—
II (Name of co-principal investigator and/or faculty associate)	Wanda E. Ward		—	—	—	—	—
A.							
B.							
III. Transfer of Support If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.	NA	—	—	—	—	—	—
IV (Other agencies to which this proposal has been/will be submitted)	NA						

*Non-academic researchers may report percentage of effort using the first column only.

Research Locale Report

1.

The University of Oklahoma has provided the National Science Foundation with all current required reports detailing available equipment and services. Also on file with the National Science Foundation are EEO/AA and faculty profile worksheets. Additional copies of these reports will be made available upon request.

2.

The principal investigators' research laboratory facilities include the following equipment necessary for maintenance of the grant contract: (A) Three room, interconnecting laboratory space, (B) ALTOS system computer and terminals (3), (C) APPLE II computer system, (D) APPLE Macintosh computer system, and (E) appropriate materials and assessment instruments.

3.

The Department of Psychology provides the following support services to granted faculty: (A) Computer technician services for computer programming, maintenance and repair, (B) Additional computer equipment access, including OSBORNE and APPLE II systems (4), (C) Materials storage and supply, (D) Statistical and methodological consulting programs, (E) Subject Pool access and administration, and (F) Graduate student recruitment for funded positions.

APPENDIX V

CHECKLIST FOR PROPOSAL SUBMISSION

Complete proposals help to expedite review and assist the applicant to meet a planned program. To assure that research proposals submitted to the Foundation are complete, an administrative check should be made before mailing.

- ☒ Cover page (use requested format)
- ☒ Appropriate boxes under REMARKS on cover page checked
- ☒ Human Subjects Certification, if required
- ☐ Recombinant DNA Certification, if required
- ☐ All required signatures (principal investigator, co-principal investigators, and organizational)
- ☒ Table of contents
- ☐ Project summary (less than 200 words)
- NA☐ Summary of progress to date and its relation to proposed work (renewals only)
- ☒ Detailed description of proposed research
- ☒ Bibliography of pertinent literature
- ☒ Vitae of all senior personnel
- ☒ Current list of main publications of senior personnel (major publications currently in press may be listed)
- ☒ Budget in requested format
- NA☐ Equipment Certification, if required
- NA☐ Brief description and justification of major items of requested equipment
- NA☐ Brief description of type and extent of travel and its relationship to the research
- NA☐ Current and pending support (see Appendix IV)
- ☒ List or description of available facilities and major items of equipment to be used in the proposed research
- ☒ Required number of copies of the proposal, including the original signed copy (see Appendix VII)
- NA☐ Residual Funds Statement, if required.

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APPENDIX IX

FORM APPROVED
OMB No. 3145-0058

Clip One Copy Only to the Face Page of the Signature Copy of the Application:

Supplementary Information

PRINCIPAL INVESTIGATOR(S)/PROJECT DIRECTOR(S)

The National Science Foundation has an obligation to monitor the operation of its award process to assess patterns of sex, race, or ethnicity among proposed Principal Investigators/Project Directors.

To provide the NSF with the information it needs for this important task, the Principal Investigator(s)/Project Director(s) is (are) requested to complete this form and attach a single copy to the face page of the signature copy of the application. Submission of this information is optional (but is strongly encouraged).

Upon receipt and assignment of the application by the NSF, this form will be detached from the application. It will *NOT* be duplicated, will *NOT* be made available to the NSF Program Officer, and will *NOT* be a part of the review process. Data will be confidential, and will be maintained in secure data files in accordance with the Privacy Act of 1974. All analyses conducted on the data will report aggregate statistical findings only and will not identify individuals.

Whether you do or do not provide this information will in no way affect consideration of an application.

Where only one Principal Investigator/Project Director is involved, simply check the appropriate boxes. If there are two or more, enter the appropriate numbers in the boxes.

Sex: [1] Female [1] Male

Race and/or Ethnic Origin:

- [ ] American Indian or Alaskan Native
- [ ] Asian or Pacific Islander
- [1] Black, not of Hispanic origin
- [ ] Hispanic
- [1] White, not of Hispanic origin

NOTE: The category that most closely reflects the individual's recognition in the community should be used for the purposes of reporting mixed racial and/or ethnic origins. Definitions follow.

American Indian or Alaskan Native
A person having origins in any of the original peoples of North America, and who maintains cultural identification through tribal affiliation or community recognition.

Asian or Pacific Islander
A person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes, for example, China, India, Japan, Korea, the Philippine Islands and Samoa.

Black, not of Hispanic origin
A person having origins in any of the black racial groups of Africa.

Hispanic
A person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race.

White, not of Hispanic origin
A person having origins in any of the original peoples of Europe, North Africa, or the Middle East.