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Social Categorization Moderates Social Projection

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When categorized into social groups, people view members of in-groups, but not members of out-groups, as being similar to themselves. In three experiments, social categorization moderated the spread of social projection in both minimal and value-tagged laboratory groups and regardless of whether individual perceivers judged both groups or only one. The categorization effect tracked changes in the perceiver's group status so that most perceivers projected only to present but not past in-groups. The lack of out-group projection supported an anchoring hypothesis, according to which self-referent information is engaged only when it is considered applicable to the judgment at hand. The induction hypothesis and the differentiation hypothesis, which predicted positive and negative out-group projection, respectively, were not supported. Implications for theories of intergroup perception and bias are discussed.

Key Words: social projection; social categorization; minimal groups.

When people predict the thoughts, feelings, or behaviors of others, they tend to assume that these others think, feel, and behave as they themselves do (for reviews, see Krueger, 1998c, 2000b). Social projection affects predictions of how others see us (Felson, 1993; Kenny & DePaulo, 1993), predictions of how others see themselves (Krueger, 1998b; Krueger, Ham, & Linford, 1996), social stereotyping (Krueger, 1996a), voting behavior and political expectations (Granberg & Brent, 1983; Quattrone & Tversky, 1984; Regan & Kilduff, 1988), choices in social dilemmas (Messé & Sivacek, 1979; Orbell & Dawes, 1991), communication (Keysar, Barr, Balin, & Brauner, 2000; Nickerson, 1999), consumer behavior (West, 1996), and economic forecasts (Kahneman & Snell, 1992). Although the strength of projection varies, no particular person characteristic or type of judgment item consistently fails to show projection. People project even when they are asked not to or when they receive feedback on the accuracy of their predictions (Krueger & Clement, 1994); they project regardless of their level of cognitive busyness (Krueger & Stanke, 2001) and regardless of information they have about other individuals (Alicke & Largo, 1995; Clement & Krueger, 2000; Kenny & Acitelli, 2001; Schul & Vinokur, 2000).

There is a striking exception to this robust empirical pattern. The boundaries of social categories are veritable firewalls against the spread of projection. Ward (1967), for example, found that men and women used their own height as a cue only when estimating the average height of members of their own sex. Later, the moderating effect of gender categorization was replicated for judgments of personality (Hort & Rothbart, 1991; Krueger & Zeiger, 1993; van den Eijnden, Buunk, & Bosveld, 2000), and other categorical variables were found to moderate projection as well (e.g., Bosveld, Koomen, van der Pligt, & Plaisier, 1996; de la Haye, 2000; Mullen, Dovidio, Johnson, & Copper, 1992; Spears & Manstead, 1990).

Early Theories: No Expectation of Moderation

For the first decade after the seminal article on the "false consensus effect" (FCE) (Ross, Greene, & House, 1977), research was focused on the discovery of mechanisms contributing to projection. Theories of projection proliferated without accounting for the social categorization effect. To illustrate, consider the finding that people project more

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when they focus their attention on their own attributes and choices (Marks & Duval, 1991). There is nothing about the mechanism itself that would limit projection to the in-group. Of the many studied mechanisms, only the selective exposure hypothesis appeared to predict this limitation. The selective exposure account assumes that people project attributes and behaviors that they observe as being prevalent among the people with whom they associate. Not realizing that their samples of associates tend to be biased toward similarity, they assume that other, unobserved group members also share these attributes and behaviors. Inasmuch as people associate more with in-group than with out-group members, in-group samples may be more biased than out-group samples. Thus, there is greater projection to in-groups than to out-groups (Marks & Miller, 1987).

Although the selective exposure hypothesis is plausible in many social contexts, it does not capture the necessary and sufficient causes of asymmetric projection. The in-group/out-group asymmetry occurs even when there was no exposure to other individuals. Wilder (1984), for example, based categorization on putative artistic preferences and found that participants expected in-group members' more than out-group members' attitudes to resemble their own.[1]

Social Categorization in the Laboratory

Experimental control over categorization has two important advantages. First, preexisting stereotypes cannot affect perceptions of similarity. Therefore, any correlations between descriptions of the self and descriptions of the group indicate projection rather than conformity with perceived group norms or self-stereotyping. Second, selective exposure cannot explain in-group/out-group differences in projection because participants do not encounter other members of either group.

The first goal of the current work was to study the moderating effect of social categorization in a minimal group paradigm. We predicted that participants would project more to in-groups than to out-groups, even when these groups were established on patently arbitrary grounds. To provide an unambiguous test of this hypothesis, we controlled potential contaminants. Over the past three decades, the minimal group paradigm has been dedicated to the study of in-group favoritism (Tajfel, Billig, Bundy, & Flament, 1971). The evidence shows that people possess a bias to view their own groups favorably. Unless specific conditions are met, such as the perception of intergroup competition, people do not appear to be biased to see other groups negatively (Brewer, 1999). Thus, the expected in-group/out-group asymmetry in projection is analogous to in-group favoritism. To ensure that the projection asymmetry is not a byproduct of in-group favoritism, we measured and controlled the perceived desirability of the judgment items.

Although the effects of social desirability were controlled in some previous work, categorization was not minimal in those studies. Cadinu and Rothbart (1996) categorized participants on the basis of putative artistic preferences, and they provided a list of attributes said to be descriptive of one group. Krueger and Clement (1996) categorized participants on the basis of putative scores on a personality inventory, and they provided a general personality sketch for one group. Given such information, participants in both studies may have assumed greater within-group homogeneity and thus greater between-group differentiation than they otherwise would have. To eliminate these ambiguities, we categorized participants on the basis of their putative performance on nonverbal perceptual tests, and we offered no verbal information about group attributes other than the technical and unfamiliar group labels themselves.

To date, most conclusions regarding the role of categorization in social predictions rest on studies using one-shot designs. Participants are categorized, their responses are measured, and they are dismissed. Research on recategorization has focused on changes in the inclusiveness of the in-group. Participants who are initially led to view themselves as members of a small group subsequently find themselves to be members of a more superordinate group. This change, however, primarily affects the categorical status of other individuals rather than the status of the self (for a review, see Gaertner, Dovidio, Anastasio, & Rust, 1993). Our goal was to model participants' own social mobility experimentally. In a social world where category boundaries vary in their mutability and in their permanence, recategorization is common. Some changes in a person's categorization happen more easily (e.g., state of residence) than in others (e.g., sex); some are voluntary (e.g., academic major), whereas others are integral to development (e.g., age group). We tested a strong form of the categorization hypothesis by predicting that recategorization of the self would yield corresponding reversals of the projective pattern. Following recategorization, projection to the former in-group would decrease and projection to the new in-group would increase.

Recent Theories: How Much Projection to the Out-group Is to Be Expected?

The use of the minimal group paradigm enabled us to derive competing predictions of three recent lines of theorizing on social projection. Whereas all three theories predict projection to the in-group, one theory (*differentiation*) predicts reverse (i.e., negative) projection to the out-group,

[1] Because Wilder (1984) assessed perceived similarity on a single rating scale, it was not possible to tell whether the out-group was contrasted away from the self or whether it was merely assimilated less than the in-group was.

another theory (*induction*) predicts reduced projection to the out-group, and a third theory (*anchoring*) predicts no projection to the out-group (Krueger, 1998c, 2000b). The second goal of this research was to gather evidence that would advance our knowledge about the relative merits of these three perspectives. Before turning to the empirical work, we briefly outline each perspective.

Differentiation. The differentiation hypothesis assumes that social perceivers seek distinctions between themselves and out-groups. There are several specific versions of this hypothesis. The theory of optimal distinctiveness makes the strongest motivational assumptions. According to this view, people need to balance opposing psychological needs for similarity and uniqueness (Brewer & Roccas, 2001; Markus & Kunda, 1986). Whereas people can satisfy the former need by projecting positively to the in-group, they can satisfy the latter need by projecting negatively to the out-group. Alternatively, some authors assume only a single need for cognitive consistency. In conjunction with positive in-group projection, negative out-group projection embeds the self-concept in a balanced cognitive triangle (Spears & Manstead, 1990). Cadinu and Rothbart (1996) specifically suggested that balance is aided by an "oppositeness heuristic," which leads people to contrast out-groups away from the both the self and the in-group. The third version of the differentiation hypothesis may be derived from the theory of social identity and its offshoots. According to this view, a person's social identity is well defined inasmuch as it allows rapid and unambiguous self-categorization (e.g., Oakes, Haslam, & Turner, 1994). The projection asymmetry contributes to this psychological benefit.

Induction. The induction hypothesis assumes that projection is a special case of generalization from a known instance (Dawes, 1989; Hoch, 1987). As a prediction strategy, projection is indeed superior to guessing. Any two people, randomly drawn from a group, are more likely to be similar than dissimilar. By capitalizing on the implied similarity relation between the individual and the group, social projection increases the accuracy of consensus estimates.[2] But how informative is a sample observation for a social category to which the sample itself does not belong? Reflecting the difficulty of finding a quantitative answer to this question, formal theories of induction (e.g., statistics) are limited to inferences from a sample to the population from which the sample was drawn.[3]

Despite widespread skepticism (e.g., Sue, 1999), generalizations across category boundaries are often legitimate. When categories are structured hierarchically, subordinate categories inherit many attributes of the superordinate population. Thus, the subordinate categories can be expected to be similar to one another for the same reason that individual members of a particular group can be expected to be similar (Krueger, in press). Although the very existence of subordinate groups suggests that some differences exist, these differences are likely to be offset by a greater number of similarities. If that were not so, then the superordinate population would have little coherence. The attributes of the subordinate categories tend to be correlated as shown by the common finding that members of different social categories describe themselves similarly (for gender categories, see Martin, 1987; for national groups, see Krueger, 1996b). The induction hypothesis suggests that social perceivers acknowledge these intergroup similarities. If they do, then they will project to out-groups, although the magnitude of this effect may be smaller than projection to in-groups. If, by contrast, "projection—in the absence of any differentiating knowledge—leads to differential predictions about those with whom judges have a 'special' relationship [i.e., in-groups], it devolves into 'magical thinking' " (Dawes & Orbell, 1995, p. 67).

Anchoring. According to the anchoring hypothesis, in-group estimates, but not out-group estimates, are anchored on (i.e., assimilated to) the self. Anchoring may occur automatically because self-referent information is deeply encoded, highly accessible, and difficult to suppress (Keysar, Barr, & Balin, 1998; Mussweiler & Neumann, 1999; Mussweiler & Strack, 2000). Compared to judgments about familiar others and judgments about the group, judgments about the self are made more rapidly, with greater temporal stability, with less difficulty, and with greater confidence (Krueger & Stanke, 2001). Thus, self-referent judgments facilitate group-referent judgments (i.e., consensus estimates) more than vice versa (Clement & Krueger, 2000).

The potential automaticity of anchoring raises the question of why out-group estimates should not be assimilated to the self. Early on, Ward (1967) noted parallels between social and psychophysical judgment. He proposed that social stimuli, like physical stimuli, serve as anchors only if the perceiver considers them relevant.[4] If social projection results from selective anchoring, then predictions of out-

[2] The probability of two randomly selected people either both having or not having a binomial characteristic is

$$p^2 + (1 - p)^2,$$

where p is the probability that any randomly chosen individual has the characteristic.

[3] In research, the question of cross-category generalization is the question of external validity. Both Campbell (1957), who raised this question, and Abelson (1995), who revisited it, failed to answer it. Both recommended that researchers sample all populations to which they wish to generalize. If that proves to be impractical, then a representative sample of populations may be drawn (John & Benet-Martínez, 2000).

[4] In a classic study, heavy anchor weights produced contrast effects only if they were perceived as belonging to the same class as the target stimuli. Judgments of weight did not change when a tray was lifted incidentally, although that tray was as heavy as the anchor weights that were perceived as part of the research task (Brown, 1953).

group attributes will not be inductively assimilated to the self, nor will they be contrasted away from it (see also Otten & Wentura, 1999).

EXPERIMENT 1: SOCIAL CATEGORIZATION AND MOBILITY

In the first phase of the experiment, participants were classified as members of one of two groups depending on arbitrary feedback regarding their performance on a test of cognitive style. For each participant, projection was assessed as the similarity between responses to a set of personality inventory statements and predictions about the responses of in-group and out-group members. In the second phase, participants completed another, ostensibly more valid measure of cognitive style. Whereas half of the participants were categorized as before, the other half learned that they had initially been misclassified. These participants experienced a social mobility of sorts, finding themselves in the group they had considered an out-group in Phase 1. Projection was then measured again with a new set of statements.

With regard to the out-group, the differentiation hypothesis predicted negative projection, the induction hypothesis predicted positive projection, and the anchoring hypothesis predicted no projection. Participants subjected to a change in categorization should thus show the greatest change in projection according to the differentiation hypothesis and the smallest change according to the induction hypothesis.

Method

Participants and Apparatus

Undergraduate students (N = 80, 72% female, mean age = 18.7 years) participated individually in small laboratory rooms equipped with Macintosh IIci computers. A modified Embedded Figures Test (EFT) (Witkin, 1950) provided the putative basis for categorization in Phase 1 of the experiment. The EFT comprises 14 displays consisting of a simple figure embedded in a complex one. A modified Rod and Frame Test (RFT) (Asch & Witkin, 1948) was used for categorization in Phase 2. On each of 20 trials, a rod (line) was presented inside of a frame (square). The rod and frame were independently rotated a random number of degrees from trial to trial. A set of Minnesota Multiphasic Personality Inventory-2 (MMPI-2) items was used to assess projection (see Appendix). All stimulus presentation and data collection was controlled by Apple Computer's HyperCard 2.2 programs.

Design and Measures

Through arbitrary feedback after the EFT, participants were tentatively categorized as either "Figurers" or "Grounders." Initial categorization was then either confirmed (the initial categorization was retained) or disconfirmed (resulting in recategorization to the initial out-group). All participants made consensus estimates for the in-group and the out-group twice: once after the initial (Time 1) and once after the final categorization (Time 2). The order of these estimates varied between participants. Hence, the design was a 2 (Categorization: confirmed or disconfirmed) by 2 (Order: in-group judgments first or out-group judgments first) by 2 (Target: in-group or out-group) by 2 (Time) mixed model, in which the last two variables were manipulated within participants.

Both after their initial and after their final categorization, participants made two category-level judgments and four sets of item-level judgments. The category-level judgments were responses to the queries "What percentage of the population are Figurers (Grounders)?" and "How socially desirable is it to be a Figurer (Grounder)?" Queries referring to different groups were presented on different screens, and with regard to to estimated group size, there was no requirement for the sum of the estimates to be 100%. The item-level judgments, which were made for each of 10 MMPI statements, were (a) the estimated percentage of in-group members agreeing with the item, (b) the estimated percentage of out-group members agreeing with the item, (c) participants' own item endorsement (agree vs disagree), and (d) the perceived social desirability of the item (1 = *undesirable*, 9 = *desirable*). Items 1 to 10 in the Appendix comprised the list after initial categorization, and Items 11 to 20 comprised the list after final categorization. Each time, each set of judgments was made for the entire list of items, which was presented in a newly randomized order for each participant. Quantitative judgments were made by pressing the designated keys on the number pad, and endorsements were made by clicking the mouse at one of two buttons on the screen that were labeled *agree* and *disagree.*

Procedure

On arrival to the laboratory, participants were informed that they would partake in several unrelated studies. For the current experiment, they were told the following:

> This experiment is concerned with the relationship between different dimensions of cognitive style. Cognitive style describes the manner in which an individual approaches a problem. In the first part of this experiment, we will determine your position along one dimension of cognitive style: leveling versus sharpening. The exact meaning of each of these terms is not important at this time. It is sufficient to know that this dimension pertains to how an individual deals with patterns of visual information.

This description was kept minimal so that participants could not infer responses to MMPI items from group membership.

Initial categorization. The EFT was described as a method of assessing the "leveling–sharpening dimension of cognitive style." After the completion of the 14 EFT trials,

the message "Your performance is being scored" was displayed for 15 s along with a spinning cursor. All participants were then informed that, on the basis of their performance, they had the cognitive style of a Leveler. The directions explained,

> Research has shown a relationship between leveler and sharpener cognitive styles and another dimension: field dependency. The field dependency dimension is divided into several classes. Specifically, our research has shown that it is possible to predict with a good degree of accuracy an individual's classification on field dependency if we know his or her position on the other dimension. Since we know you are a Leveler, you are most likely also a Figurer [Grounder] on the field dependency dimension.

After reading this description, participants made the category-level and item-level judgments by responding to the statements from List 1.

Final categorization. After the item-level judgments were completed, instructions read as follows:

> Until this point, we have assumed that you are probably a Figurer [Grounder], based upon our prediction from your performance on the Embedded Figures Test. However, since the EFT was not designed to test field dependency, we need to confirm this classification.

It was then explained that the Rod and Frame Test would be used for the definitive assessment. On each of the 20 trials, participants estimated the rod's deviation from horizontal in degrees (0–180). After making the last estimate, a spinning cursor and a message stating that the computer was scoring the performance were displayed for 15 s. Then, the participants were told that their initial categorization had been either correct or incorrect. Once the final categorization had been made, participants repeated the category-level judgments and made the item-level judgments for List 2.

Results

Neither the sex of the participants nor the order in which the different sets of judgments were made qualified the results reported below. The significance level for the reported findings are listed unless they were extreme (i.e., $p < .001$). We assumed that participants would treat their own membership (or lack thereof) as a projectible attribute when they have no prior knowledge of group size. Thus, a group will be seen as larger by its own members than by out-group members (Krueger & Clement, 1997; Simon & Mummendey, 1990). The group size estimates, displayed in Table 1, showed that participants expected in-groups to be larger than out-groups. When categorization was confirmed (top row), there was only a group effect, $F(1, 39) = 9.43$, $p < .01$. When categorization was disconfirmed (bottom row), projection changed accordingly, as suggested by the Group by Time interaction, $F(1, 37) = 3.91$, $p < .06$.

TABLE 1
Estimates of Group Size

	Time 1		Time 2	
	In-group	Out-group	In-group	Out-group
Confirmed	45.98 (19.13)	34.53 (16.64)	42.25 (17.09)	36.73 (16.24)
Disconfirmed	44.92 (17.38)	32.95 (17.99)	44.90 (13.34)	41.44 (14.60)

Note. The in-group and out-group column headers refer to the group assignment at Time 1. Underlined means are estimates for actual in-groups at the time of judgment. Standard deviations are in parentheses.

Social Categorization

To eliminate possible differences in the variability of in-group and out-group estimates, each participant's consensus estimates were standardized. To guard against the possibility that projection scores might be confounded by self-enhancement (Krueger, 1998b) or in-group bias (Howard & Rothbart, 1980), desirability ratings were also standardized. Projection was then indexed idiographically by the point-biserial correlation between a participant's item endorsements and his or her consensus estimates, while desirability ratings were statistically controlled. Individual projection correlations were transformed to Fisher *Z* scores prior to analysis. For presentation in the text, mean *Z* scores are transformed back to correlation coefficients.

The central hypothesis was that people would project their own responses more to the in-group than to the out-group and that this asymmetry would track changes in group membership. The average projection coefficients, which are displayed in Fig. 1, show precisely this pattern. A 2 (Categorization: confirmed or disconfirmed) by 2 (Group) by 2 (Time) mixed-model analysis of variance (ANOVA) with repeated measures on the last two variables yielded the critical three-way interaction, $F(1, 76) = 24.14$. Only the group variable had an effect when categorization was confirmed, $F(1, 39) = 32.52$. When categorization was disconfirmed, however, the group effect varied with the time of assessment, $F(1, 37) = 31.59$. Projection decreased when the initial in-group became an out-group, $F(1, 37) = 24.73$, and it increased when the initial out-group became an in-group, $F(1, 37) = 14.87$.

Consensus estimates may depend on two sources: projection from the self and actual knowledge about the responses of other people. Regardless of their own responses, people may realize that some items are more difficult (i.e., garnering fewer endorsements) than others. Therefore, it is possible that the observed in-group/out-group asymmetry arose, in part, from a tendency to ascribe known population attributes to the in-group but not to the out-group. To eliminate the effects of item-to-item variations in actual consensus, the analyses were repeated while actual consensus rates (see Appendix) were partialled out (de la Haye, 2000; Krueger, 1998c). These "truly false consensus effects" rep-

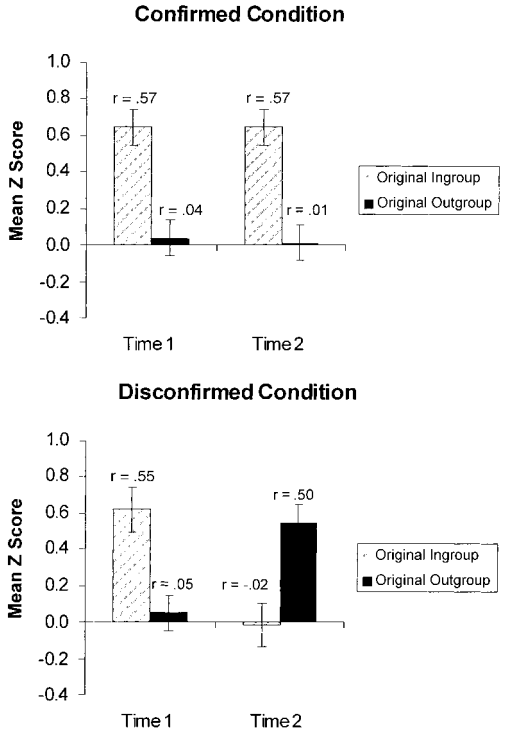

FIG. 1. Experiment 1: Projection to in-groups and out-groups under confirmed (top) and disconfirmed (bottom) categorization. Across-items analysis.

licated the pattern of results precisely. The only difference was that projection to the in-group was somewhat reduced ($M = .43$).

An alternative method to avoid the effects of actual consensus is to examine the correlations between endorsements and consensus estimates for each judgment item and across participants while controlling for desirability ratings. This method is familiar from the standard false consensus paradigm. The findings, which are displayed in Fig. 2, reinforced the well-established convergence of across-items and within-items analyses (Dawes & Mulford, 1996; Kenny & Winquist, 2001; Krueger, 2000b; Krueger & Stanke, 2001). The critical three-way interaction, $F(1, 36) = 39.27$; the group effect for the confirmed participants, $F(1, 18) = 54.00$; and the interaction for the disconfirmed participants, $F(1, 18) = 54.84$, all were reliable.

Outgroup Projection

In-group projection was consistent with all three hypotheses, but the lack of out-group projection supported only the anchoring hypothesis. Regardless of method of analysis, none of the mean out-group coefficients differed reliably from zero. According to the differentiation hypothesis, these coefficients should have been negative; according to the induction hypothesis, they should have been positive.[5]

The three hypotheses also made competing predictions about correlated individual differences. According to the differentiation hypothesis, people who project more to the in-group project less to the out-group, whereas according to the induction hypothesis, in-group and out-group projection should be positively correlated. In each of the eight conditions, the idiographic (i.e., within-participant) correlation coefficients were more heterogeneous than random sampling would suggest (all $\chi^2 > 80$, with $\chi^2_{CRIT} = 51$ for $df = 40$ and $p = .01$) (see Rosenthal, 1991). Therefore, correlating the *Z*-scored idiographic correlations across participants was an appropriate attempt to see whether the individual differences in projection generalized across conditions. Empirically, this did not appear to be the case. The four correlations ranged from −.10 to .25, with a mean of .12. This result was consistent only with the anchoring hypothesis, according to which no correlation was to be expected.

In the minimal group setting, the arbitrary nature of categorization guarantees that members of different groups are similar to one another. In this experiment, the percent-

[5] The lack of out-group projection also provides evidence against the idea that projection merely represents shared method variance (for other data contrary to this view, see also Krueger, 1998c, and Schul & Vinokur, 2000).

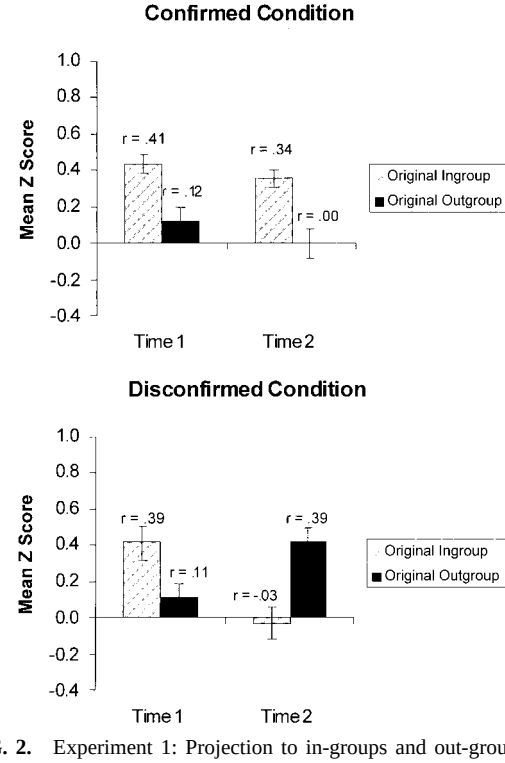

FIG. 2. Experiment 1: Projection to in-groups and out-groups under confirmed (top) and disconfirmed (bottom) categorization. Across-participants analysis.

ages of item endorsement among the presumed Figurers and Grounders were thus highly correlated ($r = .90$). The "oppositeness heuristic," which has been proposed to operate in the minimal group situation, suggests that participants' percentage estimates for the two groups should be negatively correlated (Cadinu & Rothbart, 1996). We found, however, that on average, participants expected the two groups to be moderately similar ($M = .31$), $t(79) = 3.29$ (for a test against zero).

Discussion

Arbitrary social categorization produced robust differences between in-group and out-group projection. The lack of any discernible out-group projection supported the anchoring hypothesis according to which projection is selectively engaged whenever a target group includes the self. Inductive reasoning would have produced some assimilation of the out-group to the self, whereas differentiation would have produced contrasts between the out-group and the self. Regardless of the data-analytic approach taken, out-group estimates remained independent from self-perception. The robustness of the findings was underscored by the fact that group membership rested on a more fragile foundation than it did in previous studies. At Time 1, participants learned that their group membership was not even definitive yet. One would think that participants who saw their membership revoked and then reappear should have been sensitive to the arbitrariness of categorization.

In the social world, many changes in self-categorization are profound, time-consuming, and often incomplete. Immigrants to a new country, for example, might never fully disassociate themselves from their countries of origin. The more they do assimilate, however, the more they may abandon the assumption that their original compatriots share their own preferences and attitudes. Perceptions of a shrinking common ground may lead to tensions, as illustrated by generational conflicts. A lack of understanding between the young and the old may arise, in part, from insufficient out-group projection (Heckhausen & Krueger, 1993). This lack of understanding is particularly striking among the old because they were, at one time, young themselves. The current research suggests that a simple change in group membership is sufficient to block inferences from the self to others and thus hamper communication.

Aside from the minimality of the categorization procedure, Experiment 1 also differed from previous research in that it employed a within-participants design. Conceivably, participants became particularly sensitive to social categorization because they made judgments about both groups. Given the presence of an alternative group, participants may have felt compelled to project to one group at the expense of the other. The relative merits of within-participants versus between-participants manipulations have been debated (Greenwald, 1976), but few question the value of doing the research both ways. Thus, Experiment 2 was designed as a between-participants replication of Experiment 1.

EXPERIMENT 2: JUDGMENTS ABOUT A SINGLE GROUP

Participants learned about the existence of only one cognitive style category. They were either assigned membership in that group or not. After initial assignment, participants made consensus estimates about the group either from the perspective of a group member or from the perspective of a nonmember. After a second—and presumably more valid—assessment procedure, some participants retained their original categorization, whereas others underwent change (members became nonmembers, and nonmembers became members). As in Experiment 1, we predicted that after each round of categorization, members would project to the group, whereas nonmembers would not. Projection among nonmembers was of particular interest because of its relevance for the three competing theoretical models.

Method

Undergraduate students ($N = 85$, 60.5% female, mean age = 18.6 years) participated in exchange for credit in an introductory psychology course. The equipment and the materials were the same as in Experiment 1. Following the original procedures, initial feedback tentatively categorized each participant as either a "Grounder" or "Not a Grounder." This initial categorization was then either confirmed or disconfirmed. Hence, the design was a 2 (Categorization: confirmed or disconfirmed) by 2 (Group: member or nonmember) by 2 (Time) mixed model, in which the last variable was manipulated within participants. At both times, participants provided their own item endorsements, social desirability ratings, and consensus estimates, all of which referred to the Grounders.

Finally, participants were to recall their own category membership at each time. The purpose of these memory probes was to ascertain whether the minimal group manipulations were effective. The data of 4 participants were discarded because these participants failed at least one of two memory probes. Thus, the effective sample included 81 participants.

Results

In this experiment (and the next), we measured projection only idiographically because alternative data-analytic methods yielded the same results as in Experiment 1. The pattern of means, which is displayed in Fig. 3, replicated the basic in-group/out-group difference and the critical recategorization effect. In conjunction, these two phenomena yielded a reliable Categorization by Group by Time interaction, $F(1,$

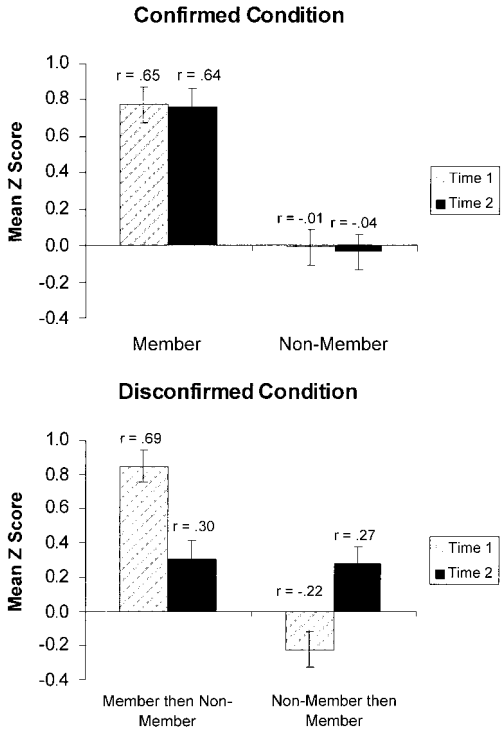

FIG. 3. Experiment 2: Projection to in-groups and out-groups under confirmed (top) and disconfirmed (bottom) categorization.

77) = 6.48, $p < .05$. There was a group effect only when categorization was confirmed, $F(1, 38) = 32.22$, and there was a Group by Time interaction only when categorization was disconfirmed, $F(1, 39) = 13.61$. Projection dropped when membership was revoked, $F(1, 20) = 6.20$, $p < .05$, and it rose when membership was granted, $F(1, 19) = 6.66$, $p < .05$. There was no reliable negative projection to the out-group in any condition. As a pattern, these findings are most consistent with the selective anchoring hypothesis, and they are inconsistent with the differentiation hypothesis. The induction hypothesis received limited support in that there was a modicum of out-group projection among participants who used to be members ($M = .30$), $t(20) = 2.23$, $p < .05$.

Discussion

Experiment 2 showed that changes in social categorization beget changes in social projection, even when only one group is being judged. The projective pattern did not switch completely, however. Participants who lost group membership and participants who gained membership projected only half as much as did participants who were members at the outset (see the second and the fourth columns in Fig. 2, respectively). The comparatively low salience of categorization in a one-group design is likely responsible for this finding. In a two-group design (Experiment 1), social categorization is salient as participants come to conceive of the social space as a set of mutually exclusive and exhaustive groups. In a one-group design (Experiment 2), however, there is greater uncertainty as to the total number and size of the groups that make up the population. Participants who lost membership may still have considered the group a part of the population and thus maintained projection. Participants who gained membership may have projected to the group at a level that they already directed to the population to which they knew they belonged. This interpretation is consistent with previous research. In one study, out-group projection was higher among participants who had first made estimates about the overall population than among participants who made population estimates last (Krueger & Clement, 1996, Experiment 2).

Experiment 3 was designed to test the replicability of the in-group/out-group asymmetry in projection. In a departure from the design of Experiment 2, both categorization and recategorization were contingent on performance feedback. Moreover, the manipulation of feedback valence afforded a stronger test of the differentiation hypothesis. Possibly, projection becomes negative when feedback threatens the self. In particular, threat might be felt if failure feedback excludes a person from a positive group. Alternatively, projection may become negative when success feedback excludes a person from a negative group. Neither the induction hypothesis nor the anchoring hypothesis suggested any valence effects.

EXPERIMENT 3: MINIMAL GROUPS WITH EVALUATIVE IMPLICATIONS

The procedures of Experiment 2 were modified in two ways. All participants experienced a change in categorization, and categorization depended on test performance. Inclusion following high or low performance suggested that the group comprised positively or negatively selected members, respectively. Exclusion after high or low performance suggested the inverse inferences. This design permitted tests of the following hypotheses. First, the basic projection asymmetry would replicate at Time 1 and would respond to changes in categorization at Time 2. Second, because of the limited salience of categorization in a one-group design, the reversal of projection would be incomplete as it was in Experiment 2. Third, negative projection among nonmembers would occur according to the differentiation hypothesis but not according to either of the two competing hypotheses.

Method

Design. Undergraduate students ($N = 136$, 69.2% female, mean age = 18.6 years) participated for research credit. Approximately half of them were group members at Time 1 and nonmembers at Time 2, whereas the others experienced the reverse change. Evaluative feedback was

given as ostensible success or failure on cognitive–perceptual tests. About half of the participants first received success feedback followed by failure feedback. The others first received failure feedback followed by success feedback. Hence, the design was a 2 (Feedback: success first or failure first) by 2 (Group: member first or nonmember first) by 2 (Time) mixed model, in which the last variable was manipulated within participants.

Procedure. The minimal group protocol was replicated with the addition of success and failure feedback. At Time 1, on completion of the EFT, participants learned whether they had succeeded. Successful participants learned the following: "Your score indicates that you performed at the 89th percentile. Of the people who took this test, most (89%) scored lower than you did." Unsuccessful participants learned the following: "Your score indicates that you performed at the 36th percentile. Of the people who took this test, most (64%) scored higher than you did." Participants were then informed that, based on their performance, they were "probably a Grounder" (members) or "probably Not a Grounder" (nonmembers). Participants then provided consensus estimates for the group of Grounders, their own endorsements, and social desirability ratings for each MMPI-2 item.

Next, participants completed the RFT. Previously successful participants learned that they performed at the 36th percentile, and previously unsuccessful participants learned that they performed at the 89th percentile. Previous group members then learned that their test score suggested that there were, after all, not Grounders. Previous nonmembers learned that they were Grounders. At both Time 1 and Time 2, group membership was crossed with success versus failure feedback. Following recategorization, participants judged the Grounders on the second set of MMPI-2 items.

To check the manipulations, two queries addressed memory for categorization, and two addressed memory for feedback. Of the 136 participants, 19 missed one or more of the manipulation check items, leaving 117 participants for analysis. In addition, 7 participants missed a membership query, 9 missed a feedback query, and 3 missed both. All but 1 of the participants who failed the manipulation check claimed that they had performed at an "average" level on the tests, suggesting that they tried to maintain a positive view of their performance.

Results and Discussion

The mean projection coefficients (see Fig. 4) showed the expected change in the in-group/out-group asymmetry following the participants' recategorization. The relevant Group by Time interaction was statistically significant, $F(1, 113) = 18.46$. Projection decreased when members became nonmembers, $F(1, 64) = 4.07$, $p < .05$, and it increased when nonmembers became members, $F(1, 51) = 15.43$. Also as expected, projection did not completely revert after

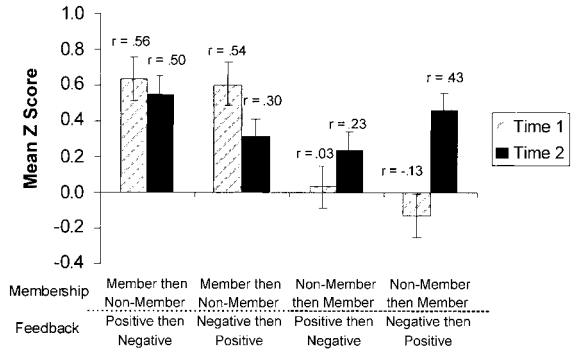

FIG. 4. Experiment 3: Projection under confirmed and disconfirmed categorization.

recategorization. Projection was highest among group members at Time 1 ($M = .55$), intermediate among nonmembers at Time 2 ($M = .40$) and among members at Time 2 ($M = .33$), and lowest among nonmembers at Time 1 ($M = -.05$). This pattern corresponded exactly to the one observed in Experiment 2. Finally, and in contrast to the differentiation hypothesis, there was no reliable reversal of projection in any condition.

Unexpectedly, the Group by Time interaction was further qualified by the valence of feedback, $F(1, 113) = 4.39$, $p < .05$. Whereas at Time 1, projection varied only with group membership, $F(1, 113) = 40.98$, this effect varied with valence at Time 2, $F(1, 113) = 5.09$, $p < .05$. The resulting pattern suggested that projection can serve a self-protective function after forced recategorization. Participants who were excluded from the group by negative feedback projected more than did participants who were excluded by positive feedback (second vs fourth columns in Fig. 4), $F(1, 64) = 3.45$, $p = .07$. The former, in other words, appeared to psychologically cling to a positively valued group, even after having been ejected from it. Consistent with this interpretation, there was also a tendency for participants who were included after positive feedback (eighth column) to project more than participants who were included after negative feedback (sixth column), $F(1, 51) = 2.09$, $p = .15$. Both of these effects suggest that participants attempted to contain unwelcome implications of forced social mobility through selective projection to valued groups. Using participants' identity as college students as a means of categorization, Gaertner, Sedikides, and Graetz (1999) found a similar result. Perceptions of similarity between the self and the group increased when a participant's individual self-concept was threatened.

GENERAL DISCUSSION

The moderating effect of social categorization on social projection has been documented for a number of years. The current experiments underscore the robustness

of this finding and extend it in three significant ways. First, projection effects were unconfounded from evaluative biases endemic in intergroup situations, and they were observed in laboratory groups that were "more minimal" than groups set up in previous research. Weighted by sample size, the mean projection coefficients across the three experiments showed that after initial categorization, participants projected strongly to the in-group ($M = .58$) but not to the out-group ($M = -.02$). Second, the zero effect for projection to the out-group is theoretically significant in that it suggests that consensus estimates for out-groups neither result from inductive reasoning not result from a need to differentiate the out-group from the self (and thereby from the in-group). The findings were consistent, however, with the view that self-referent knowledge serves as a readily accessible anchor for in-group estimates but that it is suspended for out-group estimates. Third, the current studies demonstrate that social mobility, when simulated experimentally, produces systematic variation in the projection patterns. After their second and more definitive categorization, participants projected more strongly to their new in-group ($M = .47$) than to their former in-group, which had become an out-group ($M = .19$). Increases in out-group projection at the time of final categorization did not occur across the board; they occurred only when social categorization was not fully salient and when participants could conceivably feel a need to protect a sense of group identity by selectively projecting to the more highly valued group.

Implications for Analysis and the Meaning of Bias

The success of the anchoring hypothesis is noteworthy because it involved a statistical null effect for out-groups. The law of large numbers dictates that the true effect size is either greater or smaller than zero (Krueger, 2001). With increasing statistical power, the null hypothesis regarding out-group projection will eventually be rejected, leaving only induction and differentiation as contenders. In the current research, however, the effect sizes were so small that only very large samples would bestow significance. In practice, null hypotheses are accepted when adequately powered studies fail to reject them (Frick, 1995). Researchers need only agree on an effect size that is so small "that it is appropriate in the context to consider it negligible" (Cohen, 1988, p. 16). If, for example, α is set at .05 (two-tailed) and power ($1 - \beta$) at .50, then 50 and 200 participants are needed to detect effects of $r = .20$ and .10, respectively.

In research on social judgment, evidence of bias typically involves the rejection of a null hypothesis. Rational responding is conflated with random responding, so that only "bias" can emerge as a "positive" finding (Krueger 1998a). Many of the classic egocentric biases (e.g., false consensus, self-enhancement, hindsight bias, belief perseverance) are examples of "outcome bias." People fail to ignore information that, according to certain normative models, they should ignore. If people managed to ignore irrelevant or inadmissible information, then the null hypothesis would be true and rationality would be restored. The proponents of the induction hypothesis have shown, however, that the conventional normative model for projection is itself false (Dawes, 1989; Hoch, 1987). Projection improves accuracy unless information about other group members is available. Because there is no such information in minimal groups, projection is useful *a fortiori.* As we argued earlier, the arbitrary nature of social categorization guarantees that out-group projection is also useful. It follows that the lack of out-group projection constitutes a bias (and a loss of accuracy) reminiscent of base rate neglect (Koehler, 1996). This bias consists of a failure to use information, not a failure to ignore it (for this distinction, see Krueger, 2000a). The probable truth of the null hypothesis of out-group projection is thus theoretically significant.

Implications for Theories of Intergroup Perception

Work in a variety of paradigms suggests that perceptions of in-group and out-group attributes can diverge simply because of selective projection. Response time studies, for example, show that ratings of the self and ratings of preexisting (i.e., nonminimal) in-groups facilitate each other, whereas out-group ratings are irrelevant (Smith, Coats, & Walling, 1999; Smith & Henry, 1996). Moreover, the strength of the facilitation effect predicts how much individuals identify with the group (Coats, Smith, Claypool, & Banner, 2000). In minimal groups, the presentation of in-group labels is sufficient to facilitate the verification of the valence of positive words, whereas out-group labels and negative words show no such effects (Otten & Wentura, 1999). Similarly, people spontaneously attribute positive (but not negative) traits to minimal in-groups, whereas there is no valence effect for out-groups (Otten & Moskowitz, 2000). To explain these effects, Otten and Wentura (1999) proposed that "the evaluative vacuum associated with the new category can be filled by a "spill-over" of a general positive self-regard" (pp. 1051–1052). Our data suggest a more general spill-over of self-referent knowledge to the in-group because the desirability of the judged attributes, and thus in-group favoritism, was controlled.

The selective assimilation of the in-group to the self qualifies the traditional perspectives of social identity and self-categorization theories (Abrams & Hogg, 1999). Whereas these theories consider the positive distinctiveness of the in-group to be the hallmark of intergroup perception, the projection asymmetry suggests that out-groups are perceived as being different from in-groups simply because

self-referent attributes, regardless of valence, do not become associated with the out-group. If the desirability of the judged attributes were not controlled, then the projection asymmetry would yield a bias to view the in-group more favorably than the out-group (Krueger, 1998c). In other words, at least a portion of in-group bias is incidental to the lack of out-group projection (see also Cadinu & Rothbart, 1996; Otten, in press). Proposing, as we do, that the self serves an informational base for judgments of minimal ingroups, Gramzow, Gaertner, and Sedikides (2001) found that negative self-discrepant behaviors are more easily recalled when displayed by in-group members than by outgroup members. This finding makes sense if one assumes that people do not expect in-group members to have attributes that are discrepant from their own.

In Tajfel's classic award allocation paradigm, the expectation of in-group similarity alone can lead to discriminatory behavior. Indeed, Tajfel initially expected that participants "would assume others to behave as they themselves did, and that this assumption would in turn affect their behaviour" (Tajfel et al., 1971, p. 175). Whereas Tajfel later downplayed the relevance of this mechanism for in-group favoritism, others continued to insist that if participants expect in-group members but not outgroup members to reciprocate their behavior, then they will tend to cooperate with the former rather than the latter. In particular, the behavioral interaction model (BIM) assumes that the effects of differential expectations on cooperative behavior reflect people's rational attempts to maximize their own outcomes (Rabbie, Schot, & Visser, 1989). Gaertner and Insko (2000), who recently tested the BIM by separating the effects of outcome dependency from the effects of categorization, found in-group bias only among outcome-dependent participants. These individuals believed that not only they themselves but also other participants were distributing "bonus points." Participants who believed that only they alone were distributing points, however, acted equitably.

The key to the BIM, we believe, is that the differential expectations of reciprocity are projective. Why would participants expect others to be biased if they themselves were not inclined to favor the in-group? In contrast to proponents of the BIM, however, we hesitate to attribute in-group favoritism to rational utilitarianism. Although projection itself may have a rational basis (Dawes, 1989), its discriminatory behavioral effects bear the mark of magical thinking. Whereas a participant's own biased allocations are diagnostic of others' allocations, they cannot induce others to be more biased. In other words, it would not be rational for a participant to discriminate more in hopes of receiving greater allocations from others (for a related analysis of the so-called "voter's paradox", see Quattrone & Tversky, 1984).

APPENDIX: MMPI-2 ITEMS

Item	Base rate
1. I certainly feel useless at times.	36
2. My hardest battles are with myself.	73
3. I like poetry.	62
4. It does not bother me that I am not better looking.	60
5. I am neither gaining nor losing weight.	65
6. In school I found it very hard to talk in front of the class.	56
7. I enjoy a race or a game more when I bet on it.	30
8. I am a very sociable person.	71
9. I like dramatics.	63
10. My eyesight is as good as it has been for years.	57
11. I think I would like the kind of work that a forest ranger does.	51
12. I think most people would lie to get ahead.	48
13. I enjoy detective or mystery stories.	67
14. I have very few headaches.	80
15. I have never done anything dangerous for the thrill of it.	39
16. I often think, "I wish I were a child again."	22
17. I do not worry about catching diseases.	64
18. I like to go to parties or other affairs where there is lots of loud fun.	42
19. I seldom worry about my health.	64
20. At times I have very much wanted to leave home.	37

Source. Butcher, Dahlstrom, Graham, Tellegen, and Kaemmer (1989).

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