The Journal of Social Psychology, 1976, 98, 175-181.

GROUP SIZE EFFECTS ON CONFORMITY*[1]

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SUMMARY

A field experiment is reported which tests the hypothesis that conformity is an increasing concave downward function of the numerosity of a unanimous influence source. Thirty-three student *E*s presented petitions containing zero, four, eight, or 12 previous signatures to 300 male and female college students. The probability of signing increased from zero to four signatures, then leveled off. These results, as well as those of two pilot studies, generally support the hypothesis. A two factor theory of the effects of group size on conformity is proposed.

A. INTRODUCTION

The relationship between group size and social influence has sporadically attracted the attention of researchers since the early 1950's. The present state of knowledge, based largely on American *S*s, may be summarized by three propositions as follows:

I. The influence of a single individual on group opinion tends to decrease with increases in group size (e.g., 12, 27, 31);

II. At least under some circumstances, consensus within groups decreases with increases in group size (e.g., 12, 32; but *cf.* 15, 30);

III. The probability of social influence effects on an individual are an increasing, possibly concave downward function of the numerosity of a unanimous influence source (e.g., 2, 4, 10, 11, 14, 15, 19, 21, 27). Although this third proposition has been fairly frequently examined, previous results have not been as consistent as one might wish. In some of these studies, conformity has been an apparently linear increasing function of group size [e.g. (19) passersby who stopped], while others have found inverted

* Received in the Editorial Office, Provincetown, Massachusetts, on February 15, 1975, and given special consideration in accordance with our policy for field research.

[1] The author would like to thank Deborah Davis, Anthony Greenwald, Dennis Regan, and Ladd Wheeler for their helpful comments. Requests for reprints should be sent to the author at the address shown at the end of this article.

U-shaped relationships (21) or relationships reminiscent of inverted W's (10). Not only do the empirical results deviate somewhat from Proposition III, but theoretical predictions do too. Asch (2), for instance, contends that the effects of group members do not sum, but rather the group size effect is due to "consensus." Krech, Crutchfield, and Ballachey (16) suggest that in some "real life" situations, conformity is a linear increasing function of group size. Clearly, though, development of a general theory of the relationship between group size and conformity requires some consistency in results of these studies, one would think. The intent of this paper is to provide several conceptual replications of previous studies, to examine further the form of the relationship between group size and conformity. Further, most of the previous research has centered upon ambiguous perceptual judgment tasks in which a correct response was possible. The present study examines the relationship between opinion conformity and group size in order to examine the generality of Proposition III.

Using the Crutchfield apparatus (6), Rosenberg (20, 21) found a linear increase in conformity as group size increased from two through three to four, but then found a significant decline in conformity as group size increased from four to five.[2] Since this function provides an interesting exception to Proposition III, a replication of Rosenberg's method was conducted in the first pilot study. Fifty-seven male students enrolled in an introductory psychology course at the University of Toronto during the fall of 1970 were assigned to groups of two, three, four, or five *S*s. Conformity was measured by the Crutchfield apparatus and 30 opinion items (29), 20 of which were critical, conformity trials. The method has been described more fully elsewhere (22, 23).

With mean conformity per group as the dependent measure, a simple ANOVA was done on the sine transformed data (to reduce the skew). The treatment effect was weak ($F = 2.65$, $df = 3/14$, $p = .09$). Further, the means were ordered as a linear increasing function of group size, with no indication of leveling off with larger group sizes (82% of the variance was accounted for by the linear component). These data are reported in Figure 1, with mean conformity per condition divided by maximum possible conformity per condition, to make these data points comparable to those to be reported in a second pilot study and the field experiment. The low power of the present experiment may be attributed to the small sample size, weakness of the manipulation (e.g., participants sat in cubicles and were

[2] A reanalysis of the data Rosenberg reported (20, p. 72) indicates the decline was significant in only one of his conditions.

aware of each other only through lights on their control panels), and the large number of other factors known to affect conformity [for example, see the extensive literature reviewed in Stang (24)]. Whatever the explanation, the results lend support to Proposition III, but fail to replicate Rosenberg's (21) finding of less conformity in groups of five than in groups of four.

The second pilot experiment provides a conceptual replication of the first, using the same opinion items but different *S*s, a different manipulation of numerosity of the influence source, and a paper and pencil measure of conformity. Most importantly, this pilot experiment used a wider range of group sizes than is possible with the Crutchfield apparatus. Thirty male and female undergraduates from a third year course in abnormal psychology at the University of Toronto during the Fall of 1970 served as *S*s, each randomly assigned to one of three conditions. "Attitude Survey" forms were prepared containing the first 15 items used in pilot experiment 1. Below each item was a nine-point scale, ranging from "very strongly agree" to "very strongly disagree," and room for checkmarks to indicate one's opinion. One, four, or eight checkmarks were placed in each booklet after each item, in positions corresponding to the supplied answers in pilot experiment 1. *S*s were told that the *E* was conducting an attitude survey and desired to establish a set of "standardized responses" to these items. Some of the booklets had been used before, *E* noted, but *S*s were to disregard any previous checkmarks when they made their answers.

Conformity scores were established for these items (10 critical, five noncritical) in the same fashion as described in pilot experiment 1. The main effect of number of previous responses on the questionnaire was significant ($F = 4.07$, $df = 2/27$, $p < .05$), with conformity increasing from the one checkmark to four checkmarks condition, and leveling off. The data (Figure 1) describe an increasing concave downward function in agreement with Proposition III.

The present experiment provides a conceptual replication of the two pilot experiments in a field setting, examining the effects of number of previous signers on the probability of signing a petition. The study was conducted by members of a social psychology course taught by the author during the Fall of 1973 following a plan similar to that suggested by Swingle (26).

B. Method

Three hundred petitions were prepared each bearing the statement "WE ARE INTERESTED IN ENHANCING THE APPEARANCE OF THE QUEENS COLLEGE CAMPUS. WE ARE INTERESTED IN KNOW-

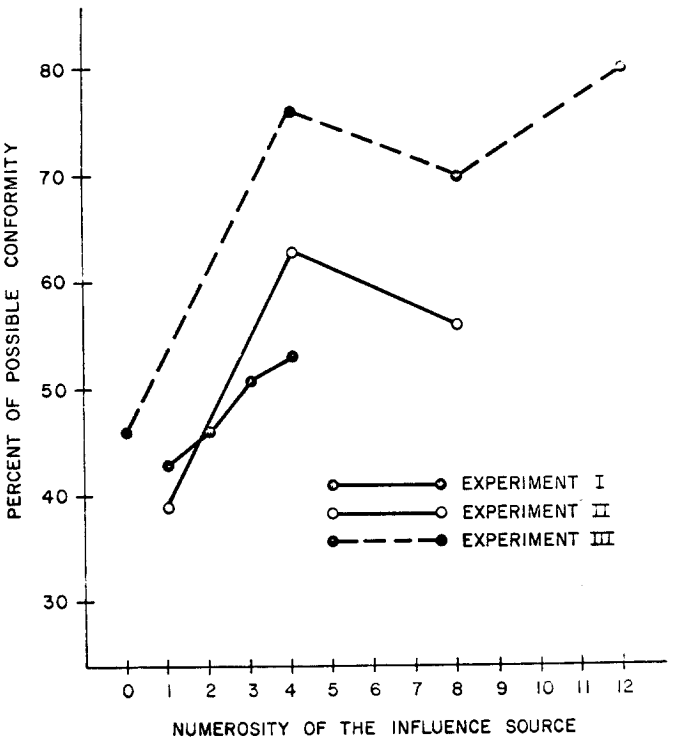

FIGURE 1
PERCENT OF MAXIMUM POSSIBLE CONFORMITY AS A FUNCTION OF NUMEROSITY OF THE INFLUENCE SOURCE IN THE TWO PILOT STUDIES (EXPERIMENTS 1 AND 2) AND THE FIELD EXPERIMENT (EXPERIMENT 3)

ING IF YOU WOULD AGREE WITH OUR PROPOSAL TO PLANT MORE SHRUBBERY AROUND THE MAIN ENTRANCE ON KISSENA BOULEVARD. IF YOU ARE INTERESTED, PLEASE SIGN BELOW." There were 75 petitions each bearing zero, four, eight, or 12 signatures. Each of 33 student *E*s took two or more petitions from each condition, shuffled them, and approached people on the Queens College campus asking them to sign. The *E*s were instructed to select *S* and request the signing without knowledge of the number of signatures provided on the petition presented. After *S* had signed or declined to sign, *E* recorded *S*'s sex and decision, and the number of previous signatures on the petition.

C. Results

The proportion of the respondents who agreed to sign the petition is indicated in Figure 1, as a function of the number of previous signatures. A chi square test on the frequencies indicates a main effect of number of previous signers approaching significance ($\chi^2 = 7.0$, $df = 3$, $p < .08$), but this effect is largely due to the increase in probability from zero to four signatures: the zero signature condition elicited fewer signatures than the others in combination ($\chi^2 = 6.51$, $df = 1$, $p < .025$), while these others (four, eight, and 12 signatures did not differ ($\chi^2 = .5$, $df = 2$, $p > .5$).

D. Discussion

The two pilot studies and the field experiment reported suggest that in a variety of situations, normative social influence is an increasing concave downward function of numerosity of the influence source: group size and conformity seem positively related only over a limited range of group sizes, beyond which the function levels off. It is also noteworthy that even over the range of group sizes where there was an apparently linear increasing relationship between these two variables, the relationship (under the present conditions of measurement, at least) was fairly weak. Other situational and experiential factors must account for far more variation in conformity than does the group size factor.

Because the present data are generally consistent with Proposition III outlined earlier, it may be worthwhile to consider two[3] interactive factors which might account for this relationship.

The first factor proposed is that of a linear increment in conformity with increases in the numerosity of the influence source. One might expect that the larger the group, the greater the pressure to conform (normative social influence) and/or the greater the probability that the group is correct (informational social influence). On this latter assumption, the reader is referred to Thorndike (28).

The second factor proposed is that of a ceiling effect, putting an upper limit on the extent of conformity that will occur with the specified *S*s under the specified experimental conditions. The operation of the ceiling has been discussed in other contexts as a "zone of acceptability" (17), an "equilib-

[3] A third factor, the credibility of the experimental manipulation, may occasionally be important. If the credibility of the manipulation decreases with increases in group size, then since suspicious *S*s are less influenced than nonsuspicious *S*s (1, 7, 9, 25), the effect of this factor might be to depress the ceiling somewhat with increases in group size. Such effects may have occurred in pilot experiment 2 reported above, as well as in other studies (2, 21).

rium point" (8), and in terms of "relative weighting" (5). It may be a consequence of *intrapersonal* factors, such as an appraisal of "optimum conformity" (e.g., 13), or a feeling of reactance (3) induced by the perception of the influence attempt, or *situational* factors, such as cultural differences (e.g., 18), or the degree to which the experiment arouses suspiciousness and thereby reduces conformity (1, 7, 9, 25). In any case, the location of the ceiling probably varies from situation to situation, population to population.

The linear factor and the ceiling factor may interact to produce three types of result. First, the conditions of the experiment may be such that the most numerous influence source used is still not able to induce conformity at or near the ceiling. In this case, the effects of the ceiling factor would not be visible, and the resultant function would be a linear increase. This may have occurred in the first pilot reported here. On the other hand, some experiments may reach the ceiling with the least numerous influence source, and consequently, only the ceiling effect (i.e., no relationship between conformity and group size) would be observed. This might occur under situational conditions which maximize conformity, such as ambiguous tasks (e.g., 11, 14). The third type of interaction would be one in which the function begins with a linear increase, then levels off as the ceiling is approached. It should not be difficult to devise experiments to test this hypothesis.

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