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STIMULUS CONDITIONS AS FACTORS IN SOCIAL CHANGE

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Thesis Committee

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STIMULUS CONDITIONS AS FACTORS IN SOCIAL CHANGE

CHAPTER I

INTRODUCTION

Much work has been done in the disciplines of sociology, anthropology, political science, history, and economics on the subject of social change. The purpose of the present study is to demonstrate social change in a laboratory situation, testing the hypothesis that social change will result from a change in the situation confronting the group.

According to the sociologist Carr, ". . . social changes are significant differences from one time to another in population, in interaction, in grouping, in culture. They are lasting alterations in the human and social factors that condition and control immediate stiuations" (5, p.101). Among the social products which regulate behavior in immediate situations are group norms. The present study is concerned with changes in group norms as a function of altered stimulus situations.

Four dimensions or kinds of variables must be considered in any study of social change: the kind of group, the kind of norm (to be defined shortly), the kind of measure used to describe the norm, and the situation.

In studying change it is essential to take a historical approach.

Ogburn points out that " . . . one generalization does stand out sharply in our social and historical studies. It is that there is a continuity in cultural change; one event grows out of another. An invention is a coordination of existing elements. Discoveries are based upon previous knowledge" (23, p.xiii). As Parsons says, "It is impossible to understand the dynamics of change without the knowledge of the structural base from which any given process of change starts" (24, p.11).

A set of terms is needed to characterize this "structural base" from which change takes place. Various concepts are suitable; among those commonly used are institution (1, 2, 3, 8, 36, 37), culture (5, 6, 8, 9, 10, 11, 12, 14, 16, 21, 25, 29), custom (23), mores (33), folkway (33), and norm (31). We characterize a norm as any standardized criterion of experience or behavior of individual members in matters to which the norm is related. Among the important features of institutions and culture are characteristic configurations of norms. The phenomena referred to as customs, mores, and folkways are subsumed under the more general concept of social norm. The concept norm is preferred for this study for two reasons: it bridges the gap between group phenomena and individual behavior, and it is applicable to small scale phenomena manipulable in the laboratory.

The psychological processes of group members are affected by the norms of the group. This has been demonstrated for learning (15), forgetting (15), remembering (4), imagining (28), perceiving (30), and behaving (22). Group membership entails certain modes of functioning, which become closer to the group norm as the individual becomes more than a nominal member of the group. This is illustrated in Newcomb's

Bennington study (22), in which it was found that juniors and seniors, who may be presumed to have become college community members in a fuller sense than have freshmen or sophomores, were much less conservative than the latter, thus conforming closer to the liberal norms of the Bennington College community.

From these facts we can deduce that a social change, or, more specifically, a change in the norms of a group, will be accompanied by a change in the psychological functioning of its members. Attitudes may be modified, along with modes of learning, forgetting, remembering, imagining, perceiving, and, of course, behaving. We, therefore, can study the psychological aspects of social change by studying modifications of these processes.

The norms involving central values of a group are less easily changed than are norms concerning means of achieving these values. Thus, the inhabitants of Middletown (18, 19) accepted the automobile as a better means of transportation than the horse without too great strain but were unable to accept the changes in courting behavior resulting from the same innovation. In general, technology, representing means to valued ends, is more susceptible to change than are the ends themselves--such as systems of morality, kinship, and power. This difference in the rate of change of means-norms and ends-norms is called cultural lag by sociologists such as Ogburn (23).

On the psychological level, there is similarly a difference in the ease of modifying attitudes related to means-norms and ends-norms respectively. Child (7) found that newcomers to America adopted American attitudes toward technology with much greater ease than American attitudes

toward the family. This does not mean that attitudes derived from the ends-norms of a group are ipso facto resistant to change in every member of that group. As Schapera points out, ". . . culture is not merely a system of formal reactions to and variations from a traditionally standardized pattern . . ." (29, p.319). There are individual differences in the acceptance of the norms of the group. By and large, however, the group norms determine the members' attitudes.

Since certain norms, on the group level of analysis, and attitudes, on the psychological level, are more susceptible to change than others, an experimental study of social change would, of course, start out by attempting to change the less fixed norms, those less strongly held, inasmuch as the general laws of norm change should apply to all norms.

Earlier we mentioned cultural lag, the time differential between the adoption of technological change and the modification of norms involving more central values. We can now see that this is but a special case of the lag between a change in conditions facing a group and the modification of the norms of the group in accordance with these changes. This is analogous to the phenomenon reported by Wever and Zener (38). Using the method of single stimuli, they presented the subject with a "light" series of weights (84, 88, 92, 96, and 100 grams), and after the subject had established a scale for this series, they suddenly introduced a "heavy" series (92, 96, 100, 104, and 108 grams). "The effect of the first series on the judgments of the second was quite evident for 20 or 25 presentations, i.e., for four or five rounds judgments of the 'heavy' predominated for all stimuli; from this point on, however, the judgments

showed a redistribution conforming to the second stimulus series" (38, p.475).

In other words, the individual subject's behavior did not immediately respond to the change in the situation (heavy series), but on the contrary he behaved in a way appropriate to the old situation (light series) for some time after that behavior was no longer appropriate. In time, however, his behavior (judgments) became appropriate to the new situation (heavy series). Tresselt (34) has shown that the more practice a subject had on one series of weights, the more trials it took to adjust to a different series under experimental conditions similar to those of Wever and Zener. It must be remembered that both of these experiments utilized weight series which were rather difficult to discriminate. Were Wever and Zener's "heavy" series to start at 192 grams, rather than at 92 grams, it would undoubtedly take fewer trials for the judgments to show a redistribution conforming to the second or heavy stimulus series.

We can say, then, that the rapidity with which an individual adjusts to a new situation is a function of the amount of his experience with the old situation, or, to use a colloquial expression, how set in his ways he is, as well as the clarity with which he perceives that the new situation is actually different from the old. Since a change in group norms is a product of changes in the function of its members, it stands to reason that the rapidity of a change in group norms to meet a new situation will also be determined by the length of time the old norms have been in effect and the ease with which the members of the group perceive that the situation is different.

We have already seen that a change in group norms is accompanied by a change in the psychological functioning of the group member. In responding to a changing situation, the members of the group come to perceive the changed situation in a different way, much as the subjects in the Wever-Zener experiment came to use different anchorages for the "heavy" series. However, this situation was not a social one in that the anchorages of the subject were almost wholly determined by the weights themselves, rather than substantially by social pressures. What is wanted is a situation where both the conditions facing the group and the social pressures of the group upon its members jointly determine the behavior of the group member.

It has already been demonstrated that where the stimulus situation is very ambiguous, the individual's behavior is determined by group pressures. Sherif (30) found that in an autokinetic situation judgments of the distance the light appeared to move were in large part determined by other judgments made in the subject's presence. In that sort of experiment there is not a conflict of anchorage between "physical reality" and "social reality," or, in other words, between the external situation and the social pressures which modify, in varying amounts, the individual's response to that external situation.

When people of a group interact with respect to an object, they are likely to form norms which regulate their experience and behavior with respect to that object. These norms take various forms, such as common language, common recognition of a status hierarchy, common judgmental scales, etc. Although individuals can form similar scales without interaction when the stimulus series is physically well ordered, as

shown by Tresselt and Volkmann (35), common judgments about complex social issues can only be arrived at through interaction. We can see evidence of this by comparing the diversity of kinship systems in existence throughout the world with the relatively unanimous acceptance of the day, month, and year as appropriate time units. Kinship units vary but time units such as the day, month, or year, being compelling, tend to become universal.

An important set of norms for all groups is that regulating the experience and behavior of their members with respect to the desirability or undesirability of various behaviors. These sets of norms are often called moral codes. They vary considerably from group to group, as do kinship systems. By this variation, we can infer that the classification of behaviors as desirable or undesirable is not based on compelling external anchorages. Since the classification is not compelling, changing the context of a given behavior might be expected to result in a change in the group norm concerning the desirability of that behavior.

A given behavior should be rated differently on a scale of desirability when in the context of very undesirable behaviors from when in the context of slightly undesirable behaviors. To use a homely example: picking the pockets of a stranger is bad compared with picking flowers from his garden, but picking his pockets is hardly bad at all compared with taking his life.

This change in rating, called contrast effect, has been demonstrated, on the individual level, with many stimulus materials. Long says that "under certain conditions, stimuli oppose each other in such a way that a weak stimulus preceded by a strong one is judged weaker

than it actually is, and vice versa. This is referred to as contrast and its presence has been found in experiments employing a variety of small stimuli: namely tones and weights in the usual psychological experiments; and colors, tones and odors in experiments on hedonic tones" (17, p.53).

Contrast effects have been found in scale formation by Sherif, Taub, and Hovland (32), using, in a weight lifting situation, anchors which were well outside the range of the original weight series. Assimilation took place when the anchor was placed fairly close to the original series.

Rogers (26), using weights, and McGarvey (20), using verbal materials, found assimilation, that is, a shift of judgments in the direction of the anchors. In these studies an anchor was defined, by the experimenter's instructions, as the end of the scale.

The specific problem of this study was the nature of the social change, or norm shift, in terms of shifts in agreed judgments of a stimulus situation which result from the introduction of a new anchorage to the group. The hypotheses tested may be stated as follows:

1. When people interact in judging the same stimuli, a group norm concerning these judgments will emerge.

2. When an anchorage well outside the original range of stimuli is introduced, these group norms will shift, exhibiting contrast effect.

CHAPTER II

EXPERIMENTAL PROCEDURE

Background

The present experiment was an extension of those studies concerned with the formation of judgmental scales by the method of single stimuli. Verbal material was used. There were, however, two important differences between this and previous studies.

1. In the present study, the anchors were not explicitly defined as such by the experimenters, but the subjects were free to choose for themselves which stimuli constitute the ends of the scale.

2. The present study did not deal merely with the formation of individual scales of judgment but with the formation of group norms concerning the placement of items on a scale by interacting pairs.

This experiment was designed to show that a group norm will be modified to meet changed conditions. The group norms in this case were the agreed ratings, on a scale of undesirability, of thirty moderately undesirable behaviors by pairs of subjects. The changed conditions were introduced by embedding these behaviors in the context of very undesirable behaviors. The group norm should show what, on the individual level, has been termed contrast effect; the rating norms should shift away from the "very undesirable" end of the scale, where the anchor is introduced.

To demonstrate this shift in norms, it was necessary to show three things:

1. A group norm was actually formed in the experimental situation. This will be shown by comparing the differences on separate, independent ratings by the two subjects of the same pair with the differences on ratings of subjects of different pairs. If a group norm is operative, two subjects from the same pair should show greater uniformity in their ratings when not in the physical presence of their "partners" than would two subjects not from the same pair.

2. The thirty behaviors represented to be "moderately undesirable" were actually perceived as less undesirable than the "very undesirable" behaviors in which they are later embedded. This will be shown by comparing subjects' ratings of the behaviors placed by the experimenter in these two categories.

3. The norms shifted, that is, the thirty "moderately undesirable behaviors" were rated as less undesirable when embedded in the "very undesirable behaviors" than when not so embedded.

General Procedure

In order to secure data for these comparisons, pairs of subjects first jointly rated statements of moderately undesirable behavior (MUBS) on a graphic rating scale. Then subject pairs of the experimental sample rated these same statements along with additional statements of very undesirable behavior (VUBS), while pairs of the control sample rated the MUBS along with similar additional statements (AMUBS). Lastly, each subject rated the same items presented in the second series (MUBS plus VUBS

for experimental, MUBS plus AMUBS for control) when not in the presence of his partner.

Subjects

Twenty five[1] pairs[2] of subjects were used for the experimental sample, and a like number for the control sample. The individuals in each pair were like-sexed and were unacquainted with each other prior to the experiment[3]. All subjects were white summer-school students. Most were undergraduates, no subject had any course work in social psychology, and no subject correctly guessed the purpose of the experiment. In each sample, there were five female and twenty male pairs, a situation reflecting subject availability.

Apparatus

A vertical screen with two horizontal, parallel slots, an inch and a half apart, was placed on a table between the experimenter and the pair of subjects, who sat side by side. This device will be referred to as the rating board. Each slot had in it a block with tongue affixed, so the block could be slid from one end of the slot to the other, or

---

[1]More than 25 pairs were run to obtain 25 pairs. See the section Unusable Subjects for details.

[2]To avoid the confusion inherent in the two common meanings of the word "group", illustrated by (a) group of people, group norm and (b) experimental group, control group, we are using the term "pair" to designate the two subjects who served together, and the term "sample" to designate the aggregation of pairs run under either the experimental or the control condition. "Pairs" are groups from the sociological point of view; "samples" are groups from the statistical point of view.

[3]A few of the subjects had seen their partners in class or on campus, but no overt interaction, such as conversation, had taken place.

removed from the board entirely. Each block could be slid 300 mm. One block was colored red, the other black. Beyond each end of the corresponding slot, identifying colored squares, red and black respectively, were placed.

Behind each slot a 300 mm ruler was placed so that the position of a mark on the tongue of each block could be read to the nearest millimeter. These rulers were, of course, not visible to the subjects. Since the rulers were facing the experimenter the reading at the subjects' extreme left was 300, and extreme right zero.

This apparatus is a kind of graphic scale; only ends of the scale furnish the subject with reference points. No other reference points are labelled, either by numbers (as in numerical scales), words (as in Likert type scales), or lack of homogeneity in the apparatus which would allow a subject to differentiate points on the scale. A subject could make ratings differing by many millimeters without being aware of the discrepancy between the ratings. The blocks were removed from the apparatus after each rating to make it more difficult for subjects to compare a rating with the previous one.

A scale of this sort was found to be necessary when pretests using a numerical scale showed that subjects, having attached a number label to an item, were loath to change the label.

Stimulus Material

For the experimental sample, the stimulus material consisted of thirty "moderately undesirable behavior" statements (MUBS) and fourteen "very undesirable behavior" statements (VUBS). For the control sample,

the fourteen VUBS were replaced by fourteen auxiliary moderately undesirable behavior statements (AMUBS) which did not duplicate any of the thirty MUBS.

Most of the rating items were selected from a pool of 175 items, many adapted from McGarvey (23). Ten subjects, not used in the main part of the experiment, rated these 175 items for undesirability on an 11 point scale; the MUBS and most AMUBS items were chosen from those near the midpoint of the scale in average rating; the VUBS from those at the "most undesirable" end of the scale.

A few of the AMUBS items were constructed to match in undesirability the MUBS items selected from the 175; thus "hunting without a license" was constructed to match approximately "fishing without a license" on the undesirability scale.

As was mentioned earlier, the justification for the classification of items (into MUBS, AMUBS, and VUBS) was an empirical rather than a historical one, that is, the correctness of our classification was justified not on the basis of their origin, or how other subjects rated them, but on the basis of how the experimental and control samples rated them.

The thirty MUBS were rated on graphic rating scales three times by each subject. The first rating was on the rating board, and for it the subjects were presented the thirty MUBS in order (see Appendix I). On the second rating, also on the rating board, the thirty MUBS were embedded in the fourteen VUBS (for the experimental sample) or the fourteen AMUBS (for the control sample). Embedding was done for the experimental sample by presenting five VUBS before the MUBS series, and placing a VUBS after each three items in the MUBS series. For the control

sample, the AMUBS items were used rather than the VUBS items.

The third rating, done independently by the subjects in separate rooms, was made on 300 mm graphic rating scales. The item list was the same as that used for the second rating; it had the thirty MUBS as well as the fourteen embedding items. Appendix II contains the item sequence employed for the experimental sample on both the second and third presentation; Appendix III contains the corresponding item sequence for the control sample.

Instructions to Subjects

After being introduced to their "partner", each pair was given the following instructions:

> I've asked you to help with this study, which is designed to get at the opinions people reach after discussing certain topics. We will follow this procedure: I will read to you statements of things people sometimes do. All of these things are usually considered wrong or undesirable, for various reasons, but not all to the same degree. After I read each statement, I want you to give your reaction to it by setting these little blocks along the scale, You _____ work with the red block, and you _____ work with the black one. Use the slot marked on each end with the color of your block. The more wrong or undesirable the behavior, in your opinion, the further to your right the block should be put.
>
> If the two of you do not place your blocks in the same position for a given statement, I would like you to discuss the behavior between you, and try to arrive at a rating which is mutually agreeable. Please tell me when you have reached agreement on the rating for an item, or when you feel that you cannot compromise the difference between you. When you give me the word, we'll go to the next item.
>
> When you rate the items, try to keep an objective point of view. That is, rate each item not on the basis of how wrong or undesirable it would be for you personally to do it, but on the basis of how wrong or undesirable you think it would be for other people to do it, without any reference to your own behavior. Try to be aware of fine differences in degrees of wrongness or undesirability; all these things are usually considered wrong or undesirable, your job is to rate just exactly how undesirable. Be careful not to rate behaviors which differ in wrongness or undesirability on the same place on the scale. Remember, the more wrong or undesirable the behavior, the

further to your right the block should go.

One last thing - the blocks must be removed from the slot when I read you the items. I will tell you when to remove them.

Feel free to ask questions about the procedure, or the meaning of any word or phrase, at any time. Do you have any questions now?

All pertinent questions were answered, then the rating board items were presented to each pair of subjects, first the thirty MUBS, second the MUBS embedded in VUBS (experimental sample) or AMUBS (control sample). After completing these tasks jointly the subjects were taken to separate experimental rooms, where each was told: "I have some more items for you to rate. Instructions are on the front page of the booklet (Appendix IV). After you finish, please fill out this short questionnaire (Appendix V)."

The questionnaire was designed to tap attitudes and feelings of subjects toward their partners and the experiment, as well as to check that subjects did not know each other.

The sequence of items rated by the separate subjects was identical with the one they had rated during the second rating board presentation: MUBS embedded in VUBS for the experimental sample, and MUBS embedded in AMUBS for the control sample.

Unusable Subjects

Demonstration of norm shift was contingent upon subjects discriminating MUBS from VUBS items and rating different items at different points on the scale. Prestests showed that a few subjects rated many MUBS items near the "most undesirable" end of the scale; apparently they viewed behaviors either as desirable or undesirable, with few or no gradations in between. Therefore a decision was made, before the main

experiment, to set aside data from subjects with this two-valued orientation. Data from subjects who rated ten or more MUBS items 50 or below were to be set aside and analysed separately. Six pairs of the experimental sample and four pairs of the control sample met this criterion for rejection.

CHAPTER III

EXPERIMENTAL RESULTS

The two hypotheses of this study, as stated at the close of Chapter I, were:

1. When people interact in judging the same stimuli, a group norm concerning these judgments will emerge.
2. When an anchorage well outside the original range of stimuli is introduced, these group norms will shift, exhibiting contrast effect.

In order to test these hypotheses, it was necessary to establish the three things stated in the previous chapter:

1. A group norm is actually formed in the experimental situation. This will be shown by comparing the differences on separate, independent ratings by the two subjects of the same pair with the differences on ratings of subjects of different pairs. If a group norm is operative, two subjects from the same pair should show greater uniformity in their ratings when not in the physical presence of their "partners" than would two subjects not from the same pair.
2. The thirty behaviors represented to be "moderately undesirable" are actually perceived as less undesirable than the "very undesirable" behaviors in which they are later embedded. This will be shown by comparing subjects' ratings of the behaviors placed by the experimenter in these two categories.
3. The norms shift, that is, the thirty "moderately undesirable behaviors" are rated as less undesirable when embedded in the "very undesirable behaviors" than when not so embedded.

In this chapter, results of analyses testing these three things, and hence the two hypotheses, will be presented.

Norm Formation

To demonstrate that a group norm was actually formed by partners, the closeness of partners' ratings was compared with the closeness of non-partners' ratings.

The square of the difference between the two ratings of a single item by the two partners of a given pair is twice the sum of the (two) squares of the deviations of these two ratings from the pair mean for that item. Hence the mean square between-partner difference is twice the variance of the partner ratings of the same item.

The variance of the ratings of a single item for all fifty subjects of a sample for one presentation (item variance) is obtained by summing the squares of the deviations from the item mean of the ratings of the fifty subjects of a sample on each item, and dividing by 1500, the number of ratings involved.

In this manner we obtained, for each sample for each presentation, the between-partner variance and the corresponding item variance. If the between-partner variance is significantly less than the item variance, then the ratings of the two partners, on a given item, are closer together, on the average, than the ratings of two non-partners. The significance of the differences between these variances may be determined by use of the F test. The results of this analysis are shown in Table 1.

From the significance of the F-ratios in Table 1 we can see that the ratings of a given item by partners were significantly closer together than ratings by non-partners. We can therefore infer that a group norm is operating. It should be noted that partners adhered to

this norm even during Presentation 3, when they made their ratings in different rooms.

The item variance is greater on Presentation 3 (alone situation) than on Presentations 1 and 2 (pair situation). In other words, there was a greater uniformity of judgment (less item variance) when subjects were members of social groups than when they were alone.

TABLE 1

COMPARISON OF BETWEEN-PARTNER AND INTRA-ITEM VARIANCES FOR THE MUBS ITEMS

Sample	Presentation	Between-Partners Variance	Intra-item Variance	F
Experimental	1	114.87	3484.92	33.1***
Experimental	2	102.13	3479.97	34.0***
Experimental	3	1827.74	4258.01	2.33***
Control	1	120.08	3515.27	29.3***
Control	2	115.34	3767.00	32.7***
Control	3	2016.57	4502.23	2.24***

***Significant at the .001 level.

Differentiation of Moderately Undesirable Behavior Statements From Very Undesirable Behavior Statements

To demonstrate that subjects actually did judge the Very Undesirable Behavior Statements (VUBS) more undesirable than the Moderately

TABLE 2

MEAN RATINGS OF BEHAVIOR STATEMENTS

These means are for all presentations of each item, and for all the subjects who rated the item. Thus each MUBS mean is a mean of 300 ratings, and each VUBS or AMUBS mean is a mean of 100 ratings.

MUBS		VUBS		AMUBS	
Item[1]	Mean	Item[2]	Mean	Item[3]	Mean
1	164.07	1	18.24	1	170.39
2	236.20	2	15.29	2	131.38
3	158.12	3	22.40	3	151.82
4	220.31	4	8.35	4	146.46
5	145.54	5	8.37	5	172.60
6	175.97	9	6.28	9	180.97
7	159.40	13	7.56	13	129.54
8	107.41	17	17.33	17	189.47
9	53.78	21	7.82	21	93.02
10	84.02	25	15.89	25	84.11
11	82.21	29	21.14	29	140.18
12	110.27	33	19.89	33	132.73
13	208.72	37	11.87	37	107.33
14	219.00	41	10.48	41	231.93
15	55.34				
16	148.26	MEAN	13.64	MEAN	147.28
17	100.72				
18	170.21				
19	93.91				
20	113.27				
21	152.86				
22	94.41				
23	61.80				
24	246.93				
25	120.53				
26	125.73				
27	201.94				
28	118.56				
29	185.39				
30	161.46				
MEAN	142.54				

[1]See Appendix I [2]See Appendix II [3]See Appendix III

Undesirable Behavior Statements (MUBS) and the latter about as undesirable as the Auxiliary Moderately Undesirable Behavior Statements (AMUBS), the differences in item ratings between MUBS and VUBS and between MUBS and AMUBS were tested.

Table 2 gives the mean of the ratings given each item or behavior statement, MUBS, VUBS, and AMUBS. These means are for all presentations of each item and for all subjects who rated the items.

It can be seen that the MUBS were indeed rated as less undesirable (mean 142.54) than the VUBS (mean 13.64). There is no overlap whatsoever between the item means of the two series; the most undesirable of the MUBS (#9, mean 53.78) was rated 31.38 mm less undesirable than the least undesirable of the VUBS (#33, mean 22.40). A *t*-test, confirming this rather compelling difference, showed the mean MUBS rating was significantly higher than the mean VUBS rating at the 1% level. This difference would be even larger if ratings of the MUBS items during the first presentation were omitted.

The AMUBS mean of 147.28 was quite close to the MUBS mean of 142.54; it is just 4.74 mm higher (less undesirable). A *t*-test indicated that this difference was not significant at the 5% level.

From these analyses we may conclude that the classification of items into MUBS, VUBS, and AMUBS was congruent with the subjects' actual ratings of the items.

Change in Norms

To demonstrate a change in norms, it was necessary to show a shift in ratings. According to our second hypothesis, the ratings of

the MUBS by the experimental sample should shift in the contrast (less undesirable) direction when the MUBS are embedded in VUBS. The control sample, for whom the MUBS were embedded in AMUBS should show no such shift, since for them judgmental anchorages were not changed.

Table 3 presents the mean ratings of the MUBS items for the experimental and control samples for each of the three presentations. To find out whether, for a given sample, there was a significant change in mean ratings from one presentation to another, the magnitude of the mean change must be compared with its standard error. This standard error of the mean change can be calculated using the mean square change of an individual's rating from one presentation to another. This mean square change is twice the between-presentation variance, just as the mean square of the between-partner differences is twice the between-partner variance.

TABLE 3

MEAN RATINGS OF MUBS ITEMS BY PRESENTATION AND SAMPLE

Sample	Presentation		
	1	2	3
Experimental	137.81	146.23	152.33
Control	138.77	137.87	141.23
Total	138.29	142.05	146.78

Thus the between-presentation variance can be obtained by taking half of the mean of the 1500 squares of changes in individuals' ratings from one presentation to another.

The square root of the between-presentation variance is the standard deviation of the change in rating from one presentation to another. By dividing this value by the square root of the number of cases involved, we arrive at the error term we are seeking, the standard error of the mean change in rating from one presentation to another.

A summary of the differences in mean ratings of MUBS items from one presentation to another, for each sample, along with their standard errors is given in Table 4.

TABLE 4

CHANGES IN MEAN RATINGS OF
MUBS ITEMS FROM ONE PRESENTATION TO ANOTHER

Sample	Change From	Mean Change	S.E. of Mean Change	Critical Ratio
Experimental	1-2	+8.42	0.42	20.0***
Experimental	1-3	+14.52	1.33	10.9***
Experimental	2-3	+6.1	1.21	5.04***
Control	1-2	-0.90	0.38	2.36*
Control	1-3	+2.46	1.37	1.80
Control	2-3	+3.36	1.29	2.60**

*Significant at the .05 level
**Significant at the .01 level
***Significant at the .001 level

The data presented in Tables 3 and 4 show, first, that the experimental and control sample were well matched, for their average ratings on Presentation 1, identical for both, differed by less than a

millimeter. Contrast effect was exhibited by the experimental sample; they shifted more than 8 millimeters from Presentation 1 to Presentation 2, while the control sample shifted very slightly in the other direction. This difference between experimental and control samples persisted in Presentation 3, the "alone" situation; ratings of the two groups differed by 11 millimeters.

Thus, our two hypotheses have been confirmed; the formation of a group norm was shown, and its shift upon a change in the situation was demonstrated.

Unusable Subjects

Unusable experimental pairs failed to differentiate between MUBS and VUBS; unusable control pairs rated most of the MUBS at or very near the "most undesirable" end of the scale. Thus for all these pairs the anchoring provided by the VUBS or AMUBS was close to the original scale, and therefore assimilation rather than contrast should have occured (32).

Separate analyses of the data from the unusable pairs were made; the results are presented in Tables 5 and 6. These analyses show assimilation taking place between Presentations 1 and 2. On Presentation 3, the "alone" situation, there was a pronounced shift toward "less undesirable" ratings; closer inspection of the data showed that these shifts did not take place for both subjects of a pair, but only for one when the pair mean exhibited this shift.

TABLE 5

MEAN RATINGS OF MUBS ITEMS
BY PRESENTATION AND SAMPLE FOR THE USUSABLE SUBJECT PAIRS

Sample	Presentation		
	1	2	3
Experimental (6 pairs)	58.32	54.19	89.19
Control (4 pairs)	67.44	58.23	82.76
Total	62.88	56.21	85.98

TABLE 6

CHANGES IN MEAN RATINGS OF MUBS ITEMS
FROM ONE PRESENTATION TO ANOTHER FOR THE UNUSABLE SUBJECT PAIRS

Sample	Change From	Mean Change	S.E. of Mean Change	Critical Ratio
Experimental	1-2	-4.13	0.94	4.40***
Experimental	1-3	+30.87	3.07	10.0***
Experimental	2-3	+35.00	2.53	13.8***
Control	1-2	-9.21	1.27	7.25***
Control	1-3	+15.32	4.83	3.18***
Control	2-3	+24.53	4.27	5.74***

***Significant at the .001 level

CHAPTER IV

DISCUSSION, CONCLUSIONS, SUGGESTIONS FOR FURTHER RESEARCH, AND SUMMARY

The main thesis of this study, that a group norm will change when the stimulus situation confronting the group changes, has been demonstrated by the shift of ratings of the experimental sample between Presentations 1 and 2 (Table 4). The mean shift for the experimental sample was more than 8 millimeters in the direction of "less undesirable," while the shift for the control sample was somewhat less than a millimeter in the opposite direction.

The small but significant shift of the control sample may have been due to a sensitization of the subjects to the implications of the undesirable behaviors. The informal remarks of many subjects, both experimental and control, indicated that the act of rating made them more aware of the problems of right and wrong.

The formation of group norms by subjects in this study is similar to that reported by Sherif (30). These norms regulate experience and behavior even when the individual is not in the physical presence of the social group, but there is usually stricter adherence to these norms when the individual is in the physical presence of the social group. We might expect that the more a particular group serves as a reference

group for an individual, the less he would deviate from its norms when not in its physical presence. This study, designed with other objectives, furnishes no evidence on this point.

There seems to be a pronounced tendency for subjects of both experimental and control samples to rate a given item as less undesirable when alone (Presentation 3) than when with his partner (Presentation 2). It appears unlikely that this difference was caused by the difference between the paper rating scale and the rating board. It is more likely that the difference is part of the general tendency for sanctions against prohibited behavior formulated by a society to be more severe than the average member of that society believes such sanctions should be. A striking example of this is provided by Kinsey et al. (16), who show that a large majority of American males are guilty of sex offenses punishable by law.

There was little awareness on the part of subjects in the experimental sample that there was a consistent shift in their ratings from Presentation 1 to Presentation 2. Typical answers by experimental subjects to the question, "Do you think that any of your ratings changed from the first presentation of an item to the second presentation of the same item?" were:

"Yes, both ways."

"Unknown."

"No."

"Yes. Either direction. Didn't remember exact rating before."

Had subjects known their ratings exactly, the shift of ratings

would have been very much reduced. During a pretest, subjects made their ratings of undesirability on a numerical scale. Once they attached a number to a behavior statement, they were very loath to change it.

Those pairs for whom the interpolated items were close to the original scale showed assimilation rather than contrast on the second presentation of the MUBS items. This finding is a confirmation of the works of Sherif, Taub, and Hovland (32), Rogers (26), and McGarvey (20), cited earlier, since for these subjects the "anchor" was close to the established MUBS scale.

We may conclude from this study that social norms will change when there is a change in the situation to which the norms are relevant. This change may be facilitated by an awareness of the changes in the situation and retarded by the codification, especially in the form of language, of these norms.

Since norms change, they should not be treated as static entities, but rather in a dynamic way. We should be careful to specify, when we describe a group norm, an exact delineation of the period of time to which we are referring as well as an accurate specification of the group.

Suggestions For Further Research

Four dimensions or kinds of variables should be considered in any study of social change: the kind of group, the kind of norm, the kind of measure used to describe the norm, and the situation. Each of these dimensions suggests a line of investigation; some of the problem areas worthy of attention are listed below:

Group: What are the group dimensions or parameters determining

the direction, amount, and speed of social change in response to a given change in the situation? Are small groups more flexible than large ones? Are groups with a small number of levels in the hierarchy more flexible than those groups having a large number of levels in the hierarchy? Will highly cohesive groups change faster than groups of lower cohesiveness? Will authoritarian or democratic groups change faster?

Norm: What kinds of norms resist change? In Chapter I it was stated that means-norms are more susceptable to change than ends-norms. Can this be experimentally demonstrated? Can we delineate more clearly the attributes of means-norms and ends-norms?

Measure: What is the sensitivity with which various measures reflect changes in norms? How are these various measures interrelated? For example, the norms of the people of Oklahoma with respect to baseball could be gotten at in many ways, such as

1. Content analyses of mass media
2. Depth interviews
3. Questionnaires
4. Financial statements of manufacturers of baseball equipment
5. Behavioral reports by trained observers

Situation: What situational changes give rise to what norm changes? Can general laws relating the two be formulated? When the situational change and the norm change can both be quantified, can a general law relating the magnitudes of the two be formulated?

The foregoing are only a few of the important but poorly mapped areas in need of more intensive investigation. In addition, studies

cutting across two or more of these dimensions are needed. These studies will be more fruitful if pursued not by researchers of a single discipline, but by psychologists, sociologists, economists, political scientists, historians, and members of still other disciplines.

Summary

Much work has been done in the disciplines of sociology, anthropology, political science, history, and economics on the subject of social change. The present study attempts to demonstrate social change in a laboratory situation, testing the hypothesis that social change, defined in terms of a change in group norms, would result from a change in the situation in which these norms are embedded.

Thirty statements of moderately undesirable behaviors, such as "fishing without a license," were presented, with instructions to rate on graphic rating scales as to undesirability, to fifty pairs of subjects, half experimental, half control, three separate times. The first presentation was without embedding material. The second and third were with fourteen embedding items which were rated along with the thirty moderately undesirable behavior statements. For the experimental sample the embedding items were statements of very undesirable behavior, such as as "kidnapping a baby for ransom;" for the control sample, they were of moderately undesirable behaviors, similar to the original thirty.

For the first two presentation of the thirty items, which took place in a single continuous session, the pair, sitting side by side, were instructed to discuss the undesirability of each behavior with a view toward making similar ratings of the item on a rating board with

separate blocks in two parallel 300 millimeter slots, one block and slot for each subject of the pair. For the third presentation, which took place immediately after this group session, the subjects were alone in separate rooms and rated the items on a 300 millimeter paper graphic rating scale.

Analysis of the ratings of the thirty items showed that a group norm was formed during the group session which caused members of a pair to rate a given item similarly even when in separate rooms. These group norms showed a shift, for the experimental sample, in the direction of rating the thirty moderately undesirable items as less undesirable when judging them in the context of the very undesirable behaviors. The control sample, continuing to judge the thirty items in a context of moderately undesirable items, made no such shift. Thus the hypothesis that a change in situation (in this case context) will bring about a change in group norms (in this case agreed-upon standards of judgment) was confirmed.

Suggestions for further research were presented along the dimensions group, norm, measure, and situation.

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APPENDIX I

MUBS ITEMS GIVEN BOTH EXPERIMENTAL AND CONTROL SAMPLES DURING PRESENTATION 1

1. deliberately listening to a conversation on a party telephone line
2. wearing shorts on the street where it is illegal
3. shooting ducks out of season
4. using slugs in a pay telephone or coke machine
5. carving initials on university desks and chairs
6. scattering papers and orange peel in a public park
7. telling a lie in order to escape from an embarassing situation
8. writing a term paper for a fellow student
9. driving too fast in a thickly settled area
10. failing to turn in to the police a diamond ring that one found
11. passing a quarter which one knows to be counterfeit
12. failing to return the money when one is given too much change in a department store
13. leaving no tip for the waiter although excellent service was given
14. having a servant or relative say that one is not at home when one actually is
15. sending fireworks through the mails, which is against the law
16. failing to pay one's bus fare when the driver overlooks it
17. falsely claiming previous work experience when applying for a job
18. picking flowers in a public park
19. lying to a traffic policeman about how fast one was driving
20. failing to throw back in the water fish which are shorter than the legal limit
21. lying in order to get out of an unattractive date
22. saying "present" for an absent friend in a college course in which attendance is required
23. cheating the government out of $50 in income tax
24. claiming to be somebody else in order to take a book for him (or her) from the library
25. stealing towels from a hotel
26. eavesdropping on a private conversation which concerns the eavesdropper
27. trespassing on private property for a picnic
28. concealing one's jail record in order to get a job
29. fishing without a license
30. swimming illegally in a river

APPENDIX II

RATING BOARD ITEM SEQUENCE FOR THE EXPERIMENTAL SAMPLE ON PRESENTATIONS 2 AND 3

The VUBS are here printed in upper case; on the paper rating scale they were printed in the same type as the MUBS.

1. EXPOSING PEOPLE TO MEASLES BY GOING TO THE MOVIES WHILE ONE IS STILL IN THE CONTAGIOUS STAGE
2. PRETENDING TO COLLECT MONEY FOR THE CANCER FUND AND POCKETING IT ONE'S SELF
3. TESTIFYING FALSELY AGAINST SOMEONE FOR PAY
4. KNOWINGLY SELLING MILK FROM DISEASED CATTLE TO A HOSPITAL
5. KIDNAPPING A BABY FOR RANSOM
6. shooting ducks out of season
7. wearing shorts on the street where it is illegal
8. deliberately listening to a conversation on a party telephone line
9. HAVING A SANE PERSON COMMITTED TO A MENTAL HOSPITAL IN ORDER TO GET RID OF HIM
10. scattering papers and orange peel in a public park
11. carving initials on university desks and chairs
12. using slugs in a pay telephone or coke machine
13. TEACHING A YOUNG PERSON TO BECOME A DOPE ADDICT
14. driving too fast in a thickly settled area
15. writing a term paper for a fellow student
16. telling a lie in order to escape from an embarassing situation
17. LYING ABOUT A FRIEND IN ORDER TO BEAT HIM (OR HER) TO A JOB
18. failing to return the money when one is given too much change in a department store
19. passing a quarter which one knows to be counterfeit
20. failing to turn in the the police a diamond ring that one found
21. SELLING THE PLANS FOR AN AMERICAN BOMBER TO A SOVIET AGENT
22. sending fireworks through the mails, which is against the law
23. having a servant or relative say that one is not at home when one actually is
24. leaving no tip for the waiter although excellent service was given
25. BLACKMAILING AN ACQUAINTANCE ABOUT WHOM ONE HAS DISCOVERED SOME DAMAGING FACTS
26. picking flowers in a public park
27. falsely claiming previous work experience when applying for a job

28. failing to pay one's bus fare when the driver overlooks it
29. PUTTING ONE'S DEFORMED CHILD IN A CARNIVAL SIDE SHOW
30. lying in order to get out of an unattractive date
31. failing to throw back in the water fish which are shorter than the legal limit
32. lying to a traffic policeman about how fast one was driving
33. BETRAYING CONFIDENTIAL INFORMATION ABOUT A FRIEND UNDER CIRCUMSTANCES WHICH WOULD ENDANGER HIS JOB
34. claiming to be someone else in order to take a book for him (or her) from the library
35. cheating the government out of $50 in income tax
36. saying "present" for an absent friend in a college course in which attendance is required
37. ACCEPTING A JOB AS A COOK IN A RESTAURANT WHEN ONE IS A TYPHOID CARRIER AND KNOWS IT
38. trespassing on private property for a picnic
39. eavesdropping on a private conversation which concerns the eavesdropper
40. stealing towels from a hotel
41. SELLING FOOD WHICH ONE KNOWS TO CONTAIN HARMFUL SUBSTANCES
42. swimming illegally in a river
43. fishing without a license
44. concealing one's jail record in order to get a job

APPENDIX III

RATING BOARD ITEM SEQUENCE FOR THE CONTROL SAMPLE ON PRESENTATIONS 2 AND 3

The AMUBS are here printed in upper case; on the paper rating scale they were printed in the same type as the MUBS.

1. HUNTING WITHOUT A LICENSE
2. STEALING AN ASH TRAY FROM A RESTAURANT
3. READING A POSTCARD ADDRESSED TO SOMEONE ELSE
4. FAILING TO MAKE A COMPLETE STOP AT A STOP SIGN
5. DROPPING USED CHEWING GUM ON THE FLOOR OF A BUS
6. shooting ducks out of season
7. wearing shorts on the street where it is illegal
8. deliberately listening to a conversation on a party telephone line
9. SENDING WRITTEN MATTER IN A PARCEL POST PACKAGE AGAINST REGULATIONS
10. scattering papers and orange peel in a public park
11. carving initials on university desks and chairs
12. using slugs in a pay telephone or coke machine
13. FAILING TO TELL THE GROCERY CLERK THAT HE FORGOT TO CHARGE THE DEPOSIT ON SOME SOFT DRINK BOTTLES
14. driving too fast in a thickly settled area
15. writing a term paper for a fellow student
16. telling a lie in order to escape from an embarassing situation
17. TALKING LOUDLY ENOUGH TO DISTURB ONE'S NEIGHBORS DURING A MOTION PICTURE SHOW
18. failing to return the money when one is given too much change in a department store
19. passing a quarter which one knows to be counterfeit
20. failing to turn in to the police a diamond ring that one found
21. WRITING IN A LIBRARY BOOK
22. sending fireworks through the mails, which is against the law
23. having a servant or relative say that one is not at home when one actually is
24. leaving no tip for the waiter although excellent service was given
25. DOING THE HOMEWORK ASSIGNMENT FOR A FELLOW STUDENT
26. picking flowers in a public park
27. falsely claiming previous work experience when applying for a job
28. failing to pay one's bus fare when the driver overlooks it
29. PLEADING A HEADACHE IN ORDER TO GET OUT OF AN APPOINTMENT

30. lying in order to get out of an unattractive date
31. failing to throw back in the water fish which are shorter than the legal limit
32. lying to a traffic policeman about how fast one was driving
33. EXAGGERATING ONE'S INCOME TO IMPRESS AN ACQUAINTANCE
34. claiming to be someone else in order to take a book for him (or her) from the library
35. cheating the government out of $50 in income tax
36. saying "present" for an absent friend in a college course in which attendance is required
37. WALKING ACROSS A NEWLY PLANTED PARK FLOWER BED
38. trespassing on private property for a picnic
39. eavesdropping on a private conversation which concerns the eavesdropper
40. stealing towels from a hotel
41. FAILING TO PUT A NICKEL IN A PAY TELEPHONE WHEN THE OPERATOR FORGETS TO ASK FOR IT
42. swimming illegally in a river
43. fishing without a license
44. concealing one's jail record in order to get a job

APPENDIX IV

INSTRUCTIONS FOR PAPER GRAPHIC RATING SCALE

INSTRUCTIONS:

Here are some more items for you to rate for wrongness or undesirability. Indicate how you now feel about each item by placing a small check mark on the appropriate place on the line to the right of each item. Just as before, the more wrong or undesirable the behavior, the further to your right the mark should be.

APPENDIX V

QUESTIONNAIRE FILLED OUT BY ALL SUBJECTS

CONFIDENTIAL

NAME_____ AGE____ SEX____ MAJOR_____

HOME TOWN_____ CHURCH PREFERENCE_____

DIRECTIONS: Check on the line above that phrase which best describes your experience. You may check between these phrases if you want to.

1. How well did you know your partner before today?

NOT AT ALL	HARDLY	CASUALLY	PRETTY WELL	INTIMATELY

2. How similar were your partner's ratings to yours before the two of you reached agreement?

IDENTICAL	VERY SIMILAR	PRETTY SIMILAR	PRETTY DIFFERENT	VERY DIFFERENT

3. About what part of the time did your first rating differ very much from that of your partner?

ALL	3/4	HALF	1/4	NONE

4. How did you like your partner's ratings?

VERY PLEASED	RATHER PLEASED	NEUTRAL	RATHER DISPLEASED	VERY DISPLEASED

5. When your first rating was quite different from that of your partner, how much strain or tension did you feel?

VERY MUCH	MUCH	SOME	LITTLE	NONE

6. Whose first ratings do you feel were more nearly correct?

USUALLY PARTNER'S	MOSTLY PARTNER'S	ABOUT EVEN	MOSTLY MINE	USUALLY MINE

7. Just how did you feel when your first rating differed from that of your partner?

8. Did your attitude toward any of the items change from the first presentation of an item to the second presentation of the same item? Briefly tell how and why.

9. Do you think that any of your ratings changed from the first presentation of an item to the second presentation of the same item? In what direction did it change and why?

10. If you have any comments or impressions, would you please write them on the reverse side of this sheet? Thank you.