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ATTITUDE CHANGE AS A FUNCTION OF RESPONSE RESTRICTION[1]

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INTRODUCTION

A number of studies have reported on factors that affect conformity to social pressures and social norms (e.g., 2, 5, 13, 19, 24). Very little is known, however, about the relationship between conformity to social norms and actual changes in attitude. From everyday observations we are familiar with two opposing phenomena. On the one hand, there are individuals who conform outwardly to the norms of their social group, but do not really accept these norms (cf. the distinction between public and private attitudes). On the other hand, there are individuals who at first conform behaviorally and verbally to the norms of the group to which they want to belong, but who gradually internalize these norms and begin to believe them. The question arises, then, as to the conditions under which conformity leads to actual changes in attitude, and the conditions under which it fails to do so.

The present experiment is concerned with this basic question in the specific setting of a fixed verbal communication situation. To induce conformity, two different degrees of response restriction were introduced by the communicator. The effects of conformity under these two conditions of response restriction were investigated. Response restriction is defined as any action on the part of *A* (a person or group; in the present case: the communicator) which limits *B's* (the communicatee's) choice behavior and thus influences *B* in the direction of performing a response favored by *A*. Or, in other words, response restriction reduces the number of response

1. This paper is based on a dissertation presented to the Faculty of the Graduate School of Yale University in candidacy for the Degree of Doctor of Philosophy. The author is greatly indebted to Dr. Carl I. Hovland, under whose guidance this study was performed; and to the other members of his thesis committee, Drs. Leonard W. Doob, Irvin L. Child, and Harold H. Kelley, who gave help and advice at every stage of the research. The experiment was carried out as part of the research program of the Attitude-Change Project at the Yale University Psychology Department.

possibilities available to the subject and thus insures a greater degree of conformity to the wishes of the influencing agent. Response restriction may be produced by increasing *B's* motivation to perform the response favored by *A*; or by restructuring *B's* perceptions, so that the response favored by *A* is more likely to be elicited. In whatever way response restriction is produced, it has the effect of making a particular response a more clearly "distinguished path".[2]

An analysis of the communication situation in terms of learning principles suggests that changes in attitude or behavior are not likely to occur unless the communicatees make the "correct" response to the communication (11). According to this analysis, response restriction would be expected to increase the amount of change, since it increases the likelihood that the subject will make the "correct" response. This has, indeed, been found true for communications designed to impart information or to teach skills. Hovland, Lumsdaine and Sheffield (12, pp. 228–246) found that an instructional film is more effective when it uses a participation technique, i.e., when it provides for the explicit rehearsal of the material to be learned during the showing of the film. Kimble (14) found that such participation techniques are most effective when the subjects are restricted to correct or nearly correct responses. These communications were, however, designed to impart information. A communication designed to change attitudes presents entirely different problems:

1. When a communication is designed to teach specific information, as in the experiments described above, it is possible to reproduce in the learning situation most of the cues which would be present at the time of performance of the response. Transfer is, thus, practically automatic. In communications designed to change attitudes, however, it is impossible to reproduce the multitude and the intricate patterning of stimuli which evoke the attitude in question. To adapt some comments which Magaret (20) makes with respect to psychotherapy: Communications designed to change attitudes are, of necessity, directed toward another situation, and concerned with changes which occur after the communication is over; if the communication is to be effective, therefore, it must produce learning which facilitates generalization.

2. When a communication is designed to teach specific information, the communicatee usually offers little resistance to a request for explicit rehearsal. However, a great deal of resistance from individuals in our culture can be anticipated if they are asked to join the communicator in saying, for instance, "I think capital punishment should be abolished." Even those who agree with

2. The introduction of the new term *response restriction* may not be completely justified by the present experiment. It stems, however, from a more general theoretical approach to social influence which will be elaborated in a future paper. According to that approach, the strength of social influence is thought to be a multiplicative function of two major variables: the ability of the influencer to induce motivation in the influence (cf. Festinger's use of the term *power* (6)), and the degree of response restriction. It is assumed that any social influence situation involves both of these factors. The secondary effects of increasing the strength of influence are likely to be different when the increase is due to increased motivation than when it is due to increased response restriction.

the statement would probably resent this request. Immediately, a host of important variables come into play—such as the nature of the attitude involved, the setting of the communication, the nature of the group which constitutes the audience, the relations between the communicator and the communicatees, and above all the latter's perception of the communicator and his motives. All of these variables will affect the learning in the situation. One cannot deal, therefore, with the explicit making of the response unless the problem of resistance is taken into account.

In view of the problems of generalization and resistance that are involved in the attitude change situation, the following analysis is proposed:

1. The amount of attitude change is not a simple function of the degree of conformity to the restriction, but also depends on the conditions under which conformity takes place. The fact that the communicatee has conformed to the communicator's restriction, and made the desired verbal response (such as, "I think capital punishment should be abolished") does not necessarily facilitate the occurrence of attitude change. Change depends on the amount of transfer, which is by no means automatic in the attitude change situation. The crucial question is, what conditions of conformity are favorable to transfer, and what conditions are unfavorable to it?

2. In answer to this question it is hypothesized that the amount of transfer of the conforming response depends on the *exact nature* of that response, i.e., not only on its overt components but also on the implicit supporting and interfering responses that accompany it. By supporting response is meant any implicit response made by the individual (usually a self-verbalization), which provides arguments in favor of the overt response he makes; which produces further motivations in the direction of the overt response; or which relates the overt response to other stimulus situations. By interfering response is meant any implicit response made by the individual which provides motivations against the overt response he makes; which limits the stimulus situations to which the overt response is applicable; or which is generally irrelevant (such as aggressive or distracting responses). Supporting responses produce cues and drives which mediate the generalization of the overt response to different stimulus situations (21). The response will therefore be more likely to occur in any future situation in which the mediating responses are revoked, regardless of the presence of the communicator or the external stimuli of the communication situation. Interfering responses, on the other hand, produce cues and drives which mediate the generalization of whatever negative (avoidance) responses are made in the communication situation. Such negative responses will therefore be more likely to occur in future situations, especially in the absence of the communicator and other external stimuli of the communication situation. In that case the conforming response will benefit only from primary generalization.

The basic hypothesis, then, is this: The performance of a response in the communication situation will facilitate transfer, and hence increase attitude

change, to the extent to which implicit supporting responses are produced; it will impede transfer and hence decrease attitude change, to the extent to which implicit interfering responses are produced.

3. The general approach to the effects of response restriction on attitude change follows directly from this hypothesis. Under what conditions, it must be asked, does response restriction produce supporting responses, and under what conditions does it produce interfering responses? In answering this question one must take into account the resistance which is likely to be produced by response restriction and the different variables which are brought into play as a result.

The literature on the induction of forces offers some suggestions about the effects of response restriction under different conditions. French (10) points out that the effects of induction will depend not only on the strength of the induced force but also on the degree of "acceptance" or "rejection" of that force: Behavior instigated by an induced force which is accepted becomes relatively independent of the inducing agent, whereas behavior instigated by an induced force which is rejected will cease as soon as the inducing power field is withdrawn. French found that acceptance of induction depends on the extent to which the inducing agent is perceived as friendly or hostile. Lippitt and White found a greater degree of acceptance under democratic than autocratic leadership (18). Frank found more acceptance with low pressure, and with a step-by-step approach (9). Various other effects of induction of forces which are related to the degree of acceptance have been found in experiments. Induction may lead to aggression (4, 8, 18, 27), tension and inhibition (4, 23), reduced constructiveness (23). On the other hand, it may also lead to increased feelings of security (1). The determinants of these different reactions which are mentioned are: The extent to which the "induced" needs are opposed to "own" needs (15, 9); the extent to which the induction increases or decreases the individual's power field (1); and the extent to which the induction restricts the individual's space of free movement (15).

On the basis of this literature it is suggested that response restriction would tend to produce supporting responses, and hence favor change, when the communicator is perceived favorably, when the restriction is in line with the subject's own needs, and when it enhances the subject's feeling of choice; response restriction would tend to produce interfering responses, and hence impede change, when the communicator is perceived unfavorably, when the restriction frustrates the subject's own needs, and when it creates an atmosphere of high pressure.

In the present experiment two degrees of response restriction were used. Response restriction was introduced by the use of positive incentives, to be described in the next section. In general, the purpose of the study was to find 1. whether, under the conditions of this experiment, the amount of attitude change is directly related to the degree of conformity; 2. whether the amount

of attitude change is related to the relative strength of supporting and interfering responses; and 3. what light can be thrown on the conditions under which restriction leads to supporting responses, and the conditions under which it leads to interfering responses.

EXPERIMENTAL PROCEDURE

A. OVER-ALL DESIGN

Situation. The experiment was designed to determine the effects of different degrees of response restriction in the amount of attitude change. To produce attitude change, a fixed communication was used. The communication favored a position at variance with most subjects' (*Ss*') initial attitudes. After the communication, *Ss* were asked to write short essays ("performance of the response") giving their own views on the topic under discussion.

Experimental variations. The experimental variations were introduced by way of the instructions for the essays. There were three experimental groups:

a. Control group: In this group the *Ss* were just asked to write their own opinions. They were given no special incentive for agreeing with the communicator, and no attempt was made to restrict their responses to those favored by the communicator (beyond whatever restriction might result from the communication as such).
b. Low Restriction group: In this group the *Ss* were promised a reward for agreeing with the communicator. They were told, however, that only a small percentage of the class would get the reward. Thus, an attempt was made to restrict their responses by offering them an incentive. The restriction was low, however, because of the low probability of getting the reward: Conforming to the communication was not the clearly dominant response for these *Ss*. The instructions emphasized this fact, by spelling out the alternative response.
c. High Restriction group: In this group the *Ss* were promised a reward for agreeing with the communicator, and were assured that everyone who conformed would get the reward. Thus, the response restriction was high: Conforming to the communication was made the clearly dominant response for these *Ss*. The instructions emphasized this fact by assuming that everyone would conform.

Measuring attitude change. To measure the amount of change produced by the different experimental variations, a before-and-after design was used. *Ss*' attitude on the topic of the communication were measured one or two days before the communication, and then again a week later. The differences in response between the before-and-after questionnaires constitute the

measure of change. Differences in amount of change for the experimental groups are ascribed to the intervening experimental treatments.

An effort was made to keep the communication session as different as possible from the before-and-after sessions. This was done in order to minimize primary generalization from the essay writing to the questionnaire and get a more valid picture of actual changes in attitude.

B. DETAILS OF PROCEDURE

Subjects. Nine seventh-grade classes in a Junior High School in New Haven, Connecticut, were used in the experiment. Each class had between 21 and 30 students. The total number of *Ss* was 246: 126 boys and 120 girls. A number of *Ss* missed one or two of the three experimental sessions, or failed to complete one or more of the questionnaires. As a result the analyses are based on fewer than the total number of cases.

The nine classes represented the entire seventh-grade population of the school (with the exception of two special classes, with students whose IQ was below 80). The nine classes had been divided by the school into three groups of three, on the basis of a series of aptitude tests. For purposes of the experiment it was assumed that these three groups represented three levels of intelligence. Intelligence level was controlled in the experiment, as will be described below.

The Latin Square design. The experiment was set up as a 3 × 3 Latin Square, with each of the nine cells represented by one class. (See *Table I.*)

TABLE I *THE LATIN SQUARE DESIGN OF THE EXPERIMENT**

		Experimental Treatments		
		Control	*Low Restriction*	*High Restriction*
Intelligence Levels	High	B**	A	C
	Medium	C	B	A
	Low	A	C	B

* Each cell represents one class.
** A, B, and C stand for the three pairs of experimenters.

Of the nine classes, three constituted the Control group, three the Low Restriction group, and three the High Restriction group. Two other variables were controlled and entered into the design of the experiment: 1. Three levels of intelligence were used. 2. Three different pairs of experi-

menters (*Es*) were used for the communication session.[3] As can be seen from *Table 1*, one class at each intelligence level was subjected to the Control treatment, one to the Low Restriction treatment, and one to the High Restriction treatment. Similarly, each pair of *Es* ran one class with the Control variation, one with Low Restriction, and one with High Restriction. In this manner, the effects of intelligence and of the *E*-variable were balanced, and it was possible to remove the variance due to these two variables from the error term.

Attitude dimension. The attitude area used in this experiment was "attitudes towards comic books". This area was selected because it was felt that children have strong personal opinions on comic books, and it was expected, on the basis of preliminary interviews, that they would show considerable resistance to change. In order to make the problem more real and meaningful for the children, actual comic book material was used. The *Ss* were asked to look at jungle stories (like Tarzan) and fantastic hero stories (like Superman) and to judge how good these stories would be as reading matter for younger children. The experimental procedures were designed to produce changes in a direction favorable to jungle books and unfavorable to fantastic hero books. On the basis of preliminary interviews with a sample comparable to our *Ss* it was found that the majority of children prefer fantastic hero books. It was expected, therefore, that our *Ss* would show a certain amount of resistance to change. On the other hand, the fact that they were asked to make an "impersonal" judgment, and especially the fact that they were asked about "younger children", made it easier for them to accept the change.[4] In brief, the situation seemed quite susceptible to experimental manipulation: It involved, potentially, a great deal of resistance, but at the same time offered a rationalization for those who "wanted" to change their attitude.

The before- and after-questionnaire. Two forms of a questionnaire were administered one week apart to each of the nine classes. The sessions were conducted by a female *E* in the presence of the class teacher. No mention was made of the communication session on either of the questionnaire sessions.

With his questionnaire, each child received a set of six folders. Each folder contained two comic stories: a jungle story and a fantastic hero story, making a total of six jungle stories and six fantastic hero stories. Each story was labelled appropriately ("jungle" or "fantastic hero"). Two such sets of six folders each were used: They differed from each other in that they contained different stories about the same characters. Half of the *Ss* in each class received Set A before and Set B after, and the other half received them in the reverse order. The explanation given to the *Ss* for the second session was that

3. The writer is grateful to Drs. Arthur Gladstone and Harold Kelley, who (in addition to the writer himself) played the role of *E* 2; and to Messrs. Clark Bailey, Keith Prouty, and Sherman Tate, who played the role of *E* 1.

4. Wolf and Fiske (26) have found that children tend to deny that comic books have any bad effects on them, but readily admit that they have bad effects on "other children". Our preliminary interviews confirmed their finding.

all the students were supposed to see both sets of folders, but did not have enough time for that in a single session.

The instructions for that part of the questionnaire on which the present paper is based were as follows:

> "On this part we want to find out whether you think certain comic books are good reading or bad reading for younger children (say 8–10 year olds). Some people think that certain comic books are good reading, because they give children enjoyment and teach them things. Some people think that certain comic books are bad reading, because children are scared by them and learn bad things from them. We want to know what you think.
>
> "You have six folders, numbered from 1 to 6. Each of them has two stories. Take the folders one by one; look over each story very quickly. After having looked at a story, answer the question about that story."

The same question was reproduced twelve times—once for each story. The question was as follows:

> *I think this story is:* (*Check one*)
> *a.—Very good reading for younger children.*
> *b.—Good reading for younger children.*
> *c.—Neither good nor bad reading for younger children.*
> *d.—Bad reading for younger children.*
> *e.—Very bad reading for younger children.*

The questionnaire yielded, then, six absolute judgments for each of the two types of books.

The communication session.—One or two days after the administration of the before-questionnaire, the communication session was held with each class. Each session was conducted by two male *Es* in the absence of the class teacher. This helped to minimize primary generalization from this session to the after-questionnaire session, which was conducted by a woman in the presence of the teacher. Also, no reference was made to the questionnaire sessions.

The following procedure was used:

1. *E 1* introduced the experiment. He told the class that this was a poll about comic books, in which the children were to be asked to write short essays on which of two kinds of comic books are better reading—jungle books or fantastic hero books. He then went on to say that one of the companies who publish fantastic hero books offered a gift of a copy of *Huckleberry Finn* to anyone who wrote in favor of fantastic hero books. This was introduced, partly, in order to enhance even more the already preferred response of favoring fantastic hero books; and partly for use in the Low Restriction variation, as will be seen later.

2. *E 2* gave a short talk in which he presented his own position on the issues of the poll. He opposed fantastic hero books and favored jungle books and he presented his reasons.

3. The students were asked to write two short essays in answer to the following questions:

(i) *Which kind of stories are better reading—jungle stories or fantastic hero stories?*
(ii) *Which kind of stories are less harmful for younger children—jungle stories or fantastic hero stories?*

In giving the instructions for these essays, *E 2* introduced the experimental variations. The instructions for each of the three groups are reproduced here in full.

Control group. You have all heard what Mr. [*E 1*] *said: If you write essays in favor of fantastic hero stories, one of the fantastic hero publishing companies will give you a copy of* Huckleberry Finn *as a free gift.*

Now go ahead and write your own opinions.

Low Restriction group. Before you start to answer the questions, listen carefully to one more thing. You have heard what Mr. [*E 1*] *said: If you write essays in favor of fantastic hero stories, one of the fantastic hero publishing companies will give you a copy of* Huckleberry Finn *as a free gift. But now I have some other news for you: If you write good essays in favor of jungle stories, you may get something much nicer than the copy of the book. You may get passes to a movie of* Huckleberry Finn.

I know you would all like to see the movie. I wish I could give passes to all of you, but unfortunately I only have five for your whole class. So, only five of the people who write essays in favor of jungle stories will be able to see the movie. Now, you don't have to be a genius to write a good essay. I think everyone here can do a good enough job. But, as I said, only five of you can get the passes.

So, it's up to you. Remember: If you write in favor of fantastic hero stories, you definitely get a copy of Huckleberry Finn. *If you write in favor of jungle stories, then you may get free passes to the movie. But you run the risk of not getting anything, since only five of you can get passes. So take your pick.*

Now, go ahead and write your own opinions.[5]

High Restriction group. Before you start to answer the questions, listen carefully to one more thing. You have all heard what Mr. [*E 1*] *said: If you write essays in favor of fantastic hero stories, one of the fantastic hero publishing companies will give you a copy of* Huckleberry Finn *as a free gift. But, I have*

5. For one of the classes these instructions were somewhat different. The students were told that *nine* of them can get the passes, rather than five. Also, the attractiveness of the movie was built up to a greater degree than in the version given above.

much better news than that for you. If you write good essays in favor of jungle stories, you will not only get the book, but you will also get passes to a movie of Huckleberry Finn. *This is going to be a very beautiful movie, which I am sure you will all enjoy tremendously.*

In order to get these passes, you have to write good essays. Now, you don't have to be a genius to write a good essay. Everyone here can do a job that will be good enough. Just try your best. I have enough passes for everyone in the class, and I am sure that everyone can get one.

If everyone here just tries his best to write good essays in which he favors jungle stories, then the whole class will get passes. Not only that, but you'll be able to take off from class time to go to see the film. The movie will be shown right here in school, during school hours, and your whole class can go together.

So, remember: Write good essays in favor of jungle books and you will not only get a copy of Huckleberry Finn, *but your whole class will be able to take off time from class and go to see the movie version of it.*

Now, go ahead and write your own opinions.[6]

The situatic for the three groups can be summarized as follows. The Control group listened to the communication and was then asked to "make the response". The tendency to favor fantastic hero books was the stronger one to begin with, and was strengthened even more by the promise of a reward (the book). The only thing to counter that tendency was the communication in favor of jungle books. No special incentives were offered for a pro-jungle book response, and no attempt to restrict responses to those favored by the communicator (beyond the restriction resulting from the communication as such) was introduced.

In the other two groups the initial situation was the same as in the Control group. The tendency to favor fantastic hero books, however, was countered not only by the communication but also by a special incentive for pro-jungle book responses. The "size" of the incentive as such was the same for both the Low and High Restriction groups: Both were promised passes to a movie.[7] They differed in two important respects: In the High Restriction group the probability of getting the reward was much higher than in the Low Restriction group; and in the High Restriction group the *Ss* had to sacrifice nothing

6. On the basis of a pilot study, followed by interviews, it was concluded that the children understood the crucial points in the instructions; and also that the incentives used were meaningfull to them. It was fairly clear that the movie represented a greater incentive than the book from the children's reactions to the announcement; they reacted with clapping, jubilation, and general commotion.

7. This statement should be qualified in two respects. 1. In the High Restriction group, the attractiveness of the movie was built up a little more than in the Low Restriction group. Also, in the High Restriction group the children were told that they would probably be able to see the movie during class time, which again would increase the attractiveness of the reward. These differences seem to be of minor importance, however. It seemed clear from the children's reactions that passes to the movie represented a high incentive, which needed no further building up. 2. The "size" of the incentive refers to the size as experimentally manipulated, and not the perceived size. It is very likely that in the Low Restriction group the incentive "seemed" greater to the *Ss* because only five in a class could get the reward.

by writing in favor of jungle books—they were promised passes *in addition* to the books—while in the Low Restriction group they could only get passes *instead* of books. As a result, writing in favor of jungle books was the clearly dominant response in the High Restriction group (for those children who wanted prizes), while in the Low Restriction group two more nearly equal alternatives were available.

4. When the *Ss* completed their essays, *E 2* left the room and *E 1* distributed an anonymous questionnaire. This questionnaire tried to measure some of the *Ss*' immediate reactions to the experimental situation. The questions can be put into four rough categories:

a. Degree to which *S* liked and was interested in the poll.
b. Attitude towards *E 2*: amount of aggression shown towards him.
c. Extent to which *S* is aware of self-motivating responses that he made while writing the essays.
d. Extent to which *S* is aware of interfering responses that he made while writing the essays.

The prizes were distributed after the completion of the entire experiment.

RESULTS AND INTERPRETATION

A. DEGREE OF CONFORMITY FOR THE THREE EXPERIMENTAL GROUPS

Two hundred twenty-four *Ss* participated in the second session of the experiment (communication session). On the basis of their essays, the *Ss* were classified as either "conformists" or "non-conformists". The conformists are those *Ss* who conformed completely to the communication, and thus wrote both of their essays in favor of jungle books. The non-conformists are those *Ss* who wrote either both, or one, or any part of their essays in favor of fantastic hero books.

TABLE II *A. NUMBER OF CONFORMISTS IN THE THREE EXPERIMENTAL GROUPS*

Group	*Total N*	*N of conformists*	*Per cent of conformists*
Control	76	32	42
Low Restriction	72	49	68
High Restriction	76	61	80

$\chi^2 = 24{\cdot}84$
$p < {\cdot}01$

TABLE II *B. DIFFERENCES IN PER CENT OF CONFORMISTS FOR ALL PAIRS OF GROUPS*

Groups	*Per cent Difference*	*CR*	*p**
Low Restriction-Control	26	3·19	<·001
High Restriction-Control	38	4·82	<·001
High Restriction-Low Restriction	12	1·67	<·05

*One tail of the normal distribution was used.

Table II presents the number and percentage of conformists in each of the three experimental groups and the significance of the differences between the groups. It can be seen that the Control group shows significantly less conformity than either of the two experimental groups. The difference between the High Restriction and Low Restriction groups is smaller, but still significant at the five per cent level of confidence. Thus, the experimental variations operated according to expectation. The introduction of the incentive produced response restriction, and hence a greater degree of conformity in the Low and High Restriction group than in the Control group. The increased probability of getting the reward produced greater response restriction and hence a greater degree of conformity in the High Restriction group than in the Low Restriction group. The three groups can therefore be said to represent a continuum of response restriction.

B. AMOUNT OF ATTITUDE CHANGE FOR THE THREE EXPERIMENTAL GROUPS

One hundred ninety-two subjects participated in all three experimental sessions. A change score for each of these *Ss* was derived from the before- and after-questionnaires in the following manner.

1. A technique similar to that described by Likert (16) was used to score every question, both in the before- and in the after-questionnaires. The most favorable answer ("I think this story is: a.—Very good reading for younger children") was given a score of 4, the next a score of 3, and so on; the least favorable answer was given a score of 0.[8]

2. The scores were added separately for items on jungle books, before-test; fantastic hero books, before-test; jungle books, after-test; fantastic hero books, after-test.

8. The use of this method of scaling is open to the criticism that it makes the unwarranted assumption of equal intervals. It was felt, however, that for the purposes of the present experiment such an approximation was sufficient.

3. The total score for fantastic hero books, before-test, was subtracted from that for jungle books, before-test. This provided a measure of initial over-all agreement with the communicator.[9]

4. The total score for fantastic hero books, after-test was subtracted from that for jungle books, after-test. This provided a measure of final over-all agreement with the communicator.

5. The figure obtained in 3 was subtracted from that obtained in 4 to yield an over-all change score. The over-all score is, then, a measure of change in the degree of agreement with the communicator, i.e., change towards jungle books and away from fantastic hero books.

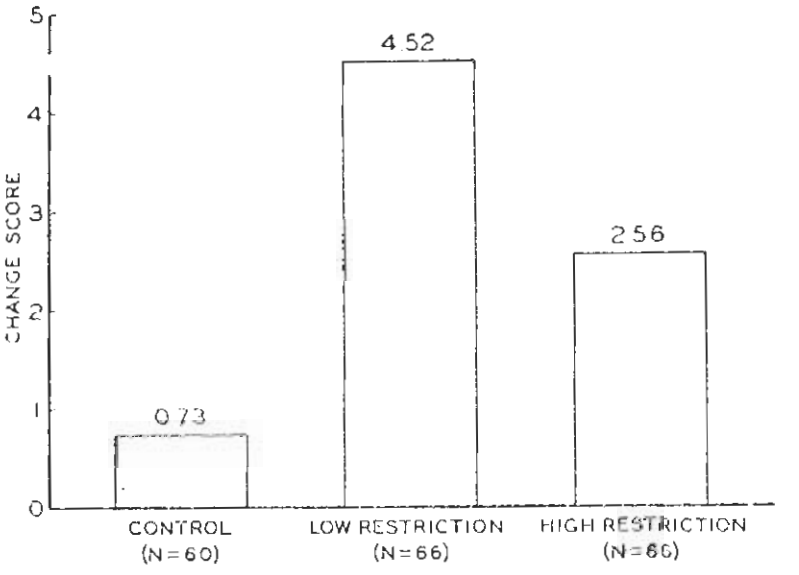

FIGURE 1

MEAN CHANGE SCORES FOR THE THREE EXPERIMENTAL GROUPS

The score represents changes in the direction of the communication.

9. It should be noted that, due to chance factors, there were considerable differences between the three experimental groups on their initial (before-test) *separate* scores for jungle and fantastic hero books. The Control group was most favorable towards both types of books, the Low Restriction group least favorable. Since the communication was *for* jungle books and *against* fantastic hero books, however, these initial differences cancelled each other out. (Thus, for example, the Control group had the least room for change towards jungle books, but it had the most room for change away from fantastic hero books; or, the Control group might be expected to be least resistant to change towards jungle books, but by the same token it would be the most resistant to change away from fantastic hero books.) We used, therefore, *the measure* of over-all agreement, described in (3) above, as the initial score. On these initial over-all scores there were only slight, and statistically insignificant differences between the three groups.

Mean change scores were computed for each of the three experimental groups. These means are presented in *Figure 1*.[10] The significance of the differences between the means was tested by an analysis of variance, summarized in *Table III*. The variance for experimental treatments is significant beyond the

TABLE III *ANALYSIS OF VARIANCE OF CHANGE SCORES**

Source of Variation	*Sum Squares*	*df*	*Variance*	*F*	*p*
Experimental treatments	416·49	2	208·24	4·30**	<·05***
Intelligence levels	66·80	2	33·40	—	
Experimenters	165·34	2	82·67	—	
Between classes error	117·20	2	58·60	—	
Within classes error	8,833·46	183	48·27		

* Since the *N*s of the classes were unequal, the following procedure was used: To compute variance estimates for experimental treatments, intelligence levels, experimenters, and between classes error, the mean of each class was multiplied by the average *N* for the classes (21); the adjusted totals obtained in this manner, and the average *N*, were substituted in the formula for the sum of squares. To compute the variance estimate for within classes error, the original (unadjusted) data were used. This procedure is a modification of a method applicable to two-way tables, described by Lindquist (17, pp. 152–157).

** In a strict sense, the variance due to experimental treatments should be evaluated against the *between* classes error, because the randomization units in this experiment are classes, not individuals. However, since the between classes error is not significantly different from the within classes error, the sums of squares for both error terms were pooled to provide a more sensitive test of significance.

*** An *F* of 4·71 is needed for significance at the one per cent level of confidence.

five per cent level of confidence. The significance of the difference between each of the three pairs of means was then tested by the *t*-ratio. These data are

TABLE IV *MEAN DIFFERENCES IN CHANGE SCORES FOR ALL PAIRS OF GROUPS*

Groups	*M difference*	*t*	*p**
Low Restriction-Control	3·79	3·13	<·002
High Restriction-Control	1·83	1·30	<·20
Low Restriction-High Restriction	1·96	1·83	<·07

* Both tails of the distribution of *t* are used.

summarized in *Table IV*. It can be seen that the Low Restriction group shows significantly more change than the Control group ($p<·002$) and almost

10. As shown in footnote 9, the differences in amount of change cannot be accounted for by initial differences between the groups.

significantly more change than the High Restriction group ($p<.07$).[11] The difference between the High Restriction and the Control groups is not significant.

How are these differences in amount of change related to the differences in degree of conformity which were discussed in the previous section? The Control group shows the lowest degree of conformity, as well as the smallest amount of change. For the other two groups, however, an interesting reversal occurs: The High Restriction group has a greater degree of conformity than the Low Restriction group; yet the Low Restriction group shows more change. It can be concluded, therefore, that the amount of attitude change is not a simple function of the degree of conformity, but depends on the conditions under which the response is made. Conformity under the conditions of Low Restriction seems to be more favorable to change than conformity under the conditions of High Restriction.[12]

C. ATTITUDE CHANGE WHEN THE DEGREE OF CONFORMITY IS CONTROLLED

Role of conformity and of the conditions for the performance of the response. From the means presented in *Figure 1* it is clear that attitude change is not a simple function of conformity, but depends on the conditions under which the response is made. It is not clear, however, what role in the production of change is played by conformity per se, and what role by the conditions of the response, since the proportion of conformists is different for the three experimental groups. The differences between the three experimental groups might mean that the act of conforming per se has no effect on attitude change or that conformity and the conditions of the response interact with each other; or that the two factors both operate, but independently from each other.

To obtain some information on these three possibilities, each experimental group was divided into conformists and non-conformists. The mean change scores of the six sub-groups created in this manner are presented in *Table V—A*. Inspection of the means shows that in each experimental group conformists change more than non-conformists; and that for both conformists and non-conformists the Low Restriction group changes more than

11. Although the difference between the Low Restriction and the High Restriction groups is only at the seven per cent level of confidence, it occurs consistently. It is found 1. with each of the three *Es* (in order to make separate comparisons for each *E*, it was necessary to correct for the differences in intelligence level between the classes compared; to do that, the deviation of each class mean from the mean of its own intelligence level was used for the comparison); 2. at each intelligence level (for this comparison the class means were corrected for the different *Es*); and 3. when changes toward jungle books, and changes away from fantastic hero books are considered separately.

12. The difference in degree of conformity between the Low and the High Restriction groups was found significant at the five per cent level when all 224 *Ss* who participated in the second session were used for the analysis. However, when only the 192 *Ss* who participated in all three sessions are used, the difference is not significant, though still in the right direction. Regardless of the size of this difference, however, it can be concluded that change is not a simple function of conformity, and that conformity under the conditions of Low Restriction is more favorable to change than conformity under the conditions of High Restriction.

TABLE V *A. MEAN CHANGE SCORES FOR CONFORMISTS AND NON-CONFORMISTS IN EACH EXPERIMENTAL GROUP*

Treatment	*Conformists*	*Non-conformists*
Control	+2·62 (*N* 29)	−1·03 (*N*=31)
Low Restriction	+5·49 (*N*=47)	+2·11 (*N*=19)
High Restriction	+3·81 (*N*=52)	−2·07 (*N*=14)

*B. ANALYSIS OF VARIANCE OF CHANGE SCORES**

Source of Variation	*Sum of Squares*	*df*	*Variance*	*F*	*p*
Experimental treatments	283·32	2	141·66	3·12	<0·5
Conformity	690·80	1	690·80	15·23	<·001
Interaction	44·73	2	22·36	—	
Replications	8,438·34	186	45·37		

* For this analysis, *Ss* from all three classes with the same experimental treatment were pooled. Variance for intelligence level, experimenters, and between classes error was not taken out since it is not significant.

the other two groups.[13] The significance of the differences between the means was tested by an analysis of variance for disproportionate sub-class numbers (25, p. 289). This method corrects for the fact that there are different proportions of conformists and non-conformists in the three experimental groups. The analysis is summarized in *Table V—b*. It can be seen that the difference between conformists and non-conformists is highly significant. Also, the variance for experimental treatments remains significant after the disproportion in number of conformists has been corrected for. There is no significant interaction between the variables.

From these results it can be concluded that conformity and the conditions under which the response is performed both operate independently in producing change. As far as the effects of conformity are concerned, it cannot be determined whether the act of conforming actually *causes* change, or whether the differences in amount of change between conformists and non-conformists are due to self-selection. It might be argued that the "kind of

13. As a check on the consistency of these findings, the non-conformists were further divided into partial and complete non-conformists. The mean change scores are as follows:

Treatment	*Control*	*Low Restriction*	*High Restriction*
Partial non-conformists:	1·88 (*N*=17)	2·30 (*N*=10)	1·83 (*N*=6)
Complete non-conformists:	−4·57 (*N*=14)	1·89 (*N*=9)	−5·00 (*N*=8)

It can be seen that in each group the partial non-conformists fall between the complete conformists and the complete non-conformists, and that at every level of conformity Low Restriction produces the greatest amount of change.

people" who conform to the wishes of the *E* are the kind who change as a result of the communication (regardless of the explicit performance of the response). Whatever the causal connection, however, conformity is clearly related to change *within* experimental groups.

Differences between experimental groups. The analysis of variance has shown that both conformity per se and the experimental treatments (conditions under which the response is performed) are independently related to change. Since the experimental groups have different proportions of conformists, both of the above factors enter into the differences between them, as presented in *Table IV*. In order to have a clearer understanding of the effects of each of the experimental treatments, it is necessary to repeat the *t*-tests presented in *Table IV*, this time holding the degree of conformity constant.

To hold the degree of conformity constant, a method suggested by Snedecor (25, p. 290) was used. (This method is an extension of the analysis of variance for disproportionate sub-class numbers, which was used in the *over-all* evaluation of the effects of experimental treatments.) The mean differences for each of the three pairs of experimental groups were weighted in such a way as to correct for the different proportions of conformists and non-conformists. The weighted mean differences and their *t*-values are presented in *Table VI*. *Table VI* differs from *Table IV* in that it contains adjusted

TABLE VI *WEIGHTED MEAN DIFFERENCES IN CHANGE SCORES FOR THE THREE PAIRS OF EXPERIMENTAL GROUPS* *

Groups	*Weighted M Difference*	*t*	*p***
Low Restriction-Control	2·98	2·46	<·02
High Restriction-Control	0·43	0·30	<·77
Low Restriction-High Restriction	2·30	2·23	<·03

* The mean differences are weighted to correct for the disproportion in number of conformists in the three experimental groups.

** Both tails of the distribution of *t* are used.

mean differences—differences which would have been obtained if the proportions of conformists and non-conformists had been the same in the three groups.

It can be seen from *Table VI* that the Low Restriction group shows significantly more change than the other two groups; and that the difference between the High Restriction group and the Control group is not at all significant. Let us now compare *Table VI* with *Table IV*.

1. In *Table IV* the difference between the High Restriction group and the Control group is not significant, but still sizeable. In *Table VI* it disappears entirely. This seems to indicate that the High Restriction group has some

advantage over the Control group because of its higher proportion of conformists. When this factor is controlled in the analysis, however, the groups show no difference.

2. The difference between the Low Restriction group and the Control group, though significant in both tables, is smaller in *Table VI* than in *Table IV*. This seems to indicate that the Low Restriction group has an advantage over the Control group both in its higher proportion of conformists and in the conditions under which the response is performed. When the disproportion in number of conformists is controlled, the difference becomes smaller, but it remains significant.

3. The difference between the Low Restriction group and the High Restriction group is greater in *Table VI* than in *Table IV*, and in fact becomes significant at the three per cent level of confidence. This would indicate that the Low Restriction group has an advantage in the conditions under which the response is performed, but the High Restriction group has an advantage in its higher proportion of conformists. When the disproportion in number of conformists is controlled, the advantage of the conditions of Low Restriction becomes more apparent.

Conclusions. On the basis of Sections A–C, the following conclusions can be drawn:

1. The act of conforming per se is clearly (though not necessarily causally) related to attitude change: *Within* each experiment group conformists show more change than non-conformists.

2. The differences *between* experimental groups, however, cannot be explained by the different proportions of conformists in the three groups: The Low Restriction group changes more than the High Restriction group even though it has a smaller proportion of conformists; and it changes more than the Control group, even after there is a correction for the higher proportion of conformists in the Low Restriction group. Clearly, then, the conditions under which the response is performed are crucial determinants of the amount of change.

3. The conditions of Low Restriction are most favorable to attitude change: When the disproportion in number of conformists is controlled, the Low Restriction group shows significantly more change than the Control group, as well as the High Restriction group. Moreover, the advantage of the Low Restriction group appears with conformists as well as with non-conformists. In fact, in the Low Restriction group even the non-conformists change in the direction of the communication, while in the other two groups the non-conformists change in the opposite direction, i.e., in the direction of the essays which they themselves wrote.

The next section will deal with the differences in the conditions of the Low and High Restriction groups which can account for these differences in amount of change.

D. DIFFERENCES BETWEEN LOW AND HIGH RESTRICTION: SUPPORTING AND INTERFERING RESPONSES

Explanation of the observed differences. According to the analysis presented in the introduction, the amount of change is a function of the number of supporting and interfering responses that are made while the conforming response occurs. If this analysis is correct, then the *Ss* in the Low Restriction group should have made more supporting and/or fewer interfering responses than the *Ss* in the High Restriction group. Three hypotheses can be offered to explain the presence of more supporting and fewer interfering responses, and hence the greater amount of change, in the Low Restriction group.

1. *The more contingent the reward on the quality of performance, the more supporting responses are produced, and hence the greater the amount of change.* For the *Ss* in the Low Restriction group, the probability of getting the prize was low: Only a few of the children could get it. They seemed to interpret this as a competitive situation, in which attainment of the prize depended on the quality of their performance. As a result, the *Ss* who conformed may have made a greater effort to present a thorough, convincing, and original argument for the position they had adopted. In that process they would have produced more implicit supporting responses, both of a motivational and a cognitive nature, and hence they would show more change. In other words, the more the *Ss* would try to convince others of their preference for jungle books, the more they would succeed in convincing themselves.

The *Ss* in the High Restriction group were virtually assured of getting the prize. As a result they may have made little effort on their essays, produced fewer supporting responses, and shown less change. The *Ss* in the Control group may also have made little effort, because they were offered no special incentive.

2. *The greater the indecision, the more supporting responses are produced, and hence the greater the amount of change.* For the *Ss* in the Low Restriction group, the alternatives—writing in favor of jungle books or writing in favor of fantastic hero books—were more nearly balanced. The *Ss* who wanted to get a prize had to choose between a response which *might* lead to a highly attractive prize, and a response which would *definitely* lead to a less attractive prize. The instructions emphasized the necessity for choice by clearly spelling out these two alternatives. Thus, even though most of the *Ss* wrote in favor of jungle books, they may have had to go through a brief period of indecision and choice. In order to arrive at a decision, they would have thought through the arguments and implications of the different positions. In that process of choice, the *Ss* who finally decided to conform would have produced implicit supporting responses in the direction of jungle books. Moreover, they would have rejected the arguments in favor of fantastic hero books, and produced interfering responses in that direction. As a result, they would show more change. This behavior would be expected to occur because, for the conformists at least, writing in favor of jungle books was the slightly (but not

unquestionably) preferred alternative. It is hypothesized that in a situation of indecision, in which one alternative is slightly preferred to the other, the individual would tend to produce implicit supporting responses in the direction of the preferred alternative and implicit interfering responses in the direction of the less preferred one. The functional significance of these implicit responses would be to increase the relative strength of the slightly preferred response, and thus to enable the individual to reach a decision.[14] Hypothesis 2 cannot explain the greater amount of change among the *nonconformists* of the Low Restriction group. In fact, it would lead us to predict the opposite outcome, since for the non-conformists "writing in favor of fantastic hero books" must have been the slightly preferred alternative.

For the *Ss* in the High Restriction group, there was little indecision. Writing in favor of jungle books was the clearly dominant response. The instructions emphasized this fact by dismissing the alternative and taking it for granted that everyone would want to write in favor of jungle books. As a result, the *Ss* in the High Restriction group may have made fewer supporting responses, and would show less change.

3. *The greater the felt pressure, the more interfering responses are produced, and hence the smaller the amount of change.* The *Ss* in the High Restriction group may have experienced a greater degree of pressure, even though the increased restriction involved a greater assurance of getting a prize. Their choice behavior was limited; they were told more directly by the communicator what he wanted them to do. The assurance of a reward may have created the impression that the communicator was bribing them into saying something against their wills, because it was for his own benefit. They may have become suspicious of the communicator and felt that he "had something up his sleeve". As a result of the resentment and suspicion produced by the pressure, the *Ss* would have made more implicit interfering responses of an aggressive and distracting nature, and would show less attitude change.[15]

In the Low Restriction group, the communicator may have been perceived as a fair individual, who "put his cards on the table". He would have aroused little resentment because he did not place strong limits on the *Ss*' choice behavior, and little suspicion because he did not offer "something for nothing". As a result, there would have been fewer interfering responses, and more change.

The difference in amount of change between the non-conformists of the Low Restriction and the High Restriction groups is also consistent with this hypothesis. Even though *Ss* do not conform, they may rehearse the communicator's arguments and learn them to some degree. In the Low Restric-

14. There is some suggestive evidence for the notion that the number of implicit responses is a function of indecision in the literature on VTE. VTE, which can be considered functionally equivalent to implicit verbal responses, decreases as one response becomes more dominant and therefore choice behavior less relevant (3, 22).

15. This hypothesis is in keeping with the findings of Frank (9) and of Coch and French (4).

tion group, such "incidental" learning would have produced changes in the direction of the communication among the non-conformists. In the High Restriction group, however, interfering responses would have reduced the amount of learning.

To obtain information on the role of supporting and interfering responses, and on the three hypotheses offered above, the *Ss*' essays and their reactions to the experimental situation were analyzed.

Quality of the essays for the three experimental groups. If indeed there are differences in the number of supporting and interfering responses for the three groups, then one would expect the quality of their essays to differ. If the *Ss* in the Low Restriction group make more supporting and fewer interfering responses while writing their essays, they should produce superior work. The reward hypothesis especially would lead us to predict that, since the *Ss* try harder to do a good job, their essays will be longer, better, and more original.

To test this notion, the essays of all conformists who participated in the communication session ($N=142$) were rated on the following three criteria:

a. Use of speaker's arguments: Number of points made by the speaker which the *S* uses, and extent to which he expands on these points.
b. Production of new arguments: Number of new arguments presented; originality and cogency of these arguments; extent of interpretation and expansion of speaker's points which show "real understanding".
c. Over-all quality: General originality, comprehensiveness, and convincingness of arguments.

A six-point scale was used in each case. All essays were arranged in random order, and read by two raters,[16] who did not know the purpose of the experiment, nor the experimental group to which any *S* belonged. The

TABLE VII *MEAN SCORES ON FOUR MEASURES OF THE QUALITY OF THE ESSAYS, FOR EACH EXPERIMENTAL GROUP*

These means are based only on conformist essays

Measure	*Group*		
	Control ($N=32$)	*Low Restriction* ($N=49$)	*High Restriction* ($N=61$)
Rating on use of speaker's arguments	2·94	3·03	2·52
Rating on production of new arguments	2·33	3·12	2·72
Rating of over-all quality	2·61	3·34	2·66
Number of words	102·34	118·63	95·43

16. The writer is grateful to Mrs. Dorothy Brown and Mrs. Astrid Totten for the rating of the essays.

inter-rater reliability (using Pearson *r's*) was ·77 for the rating on use of speaker's arguments; ·70 for the rating on production of new arguments; and ·66 for the rating of over-all quality.

In addition to the three qualitative ratings, the words in each *S's* essays were counted.[17]

Table VII presents the mean of each experimental group on each of the four measures used. These means are based on the combined data from both raters. The significance of the difference between the means was tested in each case by an analysis of variance and by separate *t*-tests for each pair of means. These data are summarized in *Table VIII*. The following conclusions can be drawn from *Tables VII* and *VIII*:

TABLE VIII *t-RATIOS FOR THE DIFFERENCES BETWEEN THE MEANS OF ALL PAIRS OF EXPERIMENTAL GROUPS ON FOUR MEASURES OF THE QUALITY OF THE ESSAYS* *

The mean differences are based only on conformist essays

Measure	*Groups Compared*		
	LR-C	*HR-C*	*LR-HR*
Rating on use of speaker's arguments	0·32	−1·49	1·98**
Rating on production of new arguments	2·90***	1·48	1·59
Rating of over-all quality	3·19***	0·23	3·56****
Number of words	2·30**	−0·98	3·95****

* An analysis of variance was performed for each measure, to provide information on the over-all significance of the experimental variations. The *p*-values were as follows:
Rating on use of speaker's arguments: $p > \cdot 05$
Rating on production of new arguments: $p < \cdot 05$
Rating of over-all quality: $p < \cdot 001$
Number of words: $p < \cdot 001$
Because of the low over-all significance on the first measure, the *t*-ratios for that measure should be viewed with some reservation.
** Significant at the ·05 level of confidence.
*** Significant at the ·01 level of confidence.
**** Significant at the ·001 level of confidence.

1. According to all four measures, the Low Restriction group produces better essays than the other two groups. In three out of four measures there is a significant difference between the Low and the High Restriction groups, and in three out of four there is a significant difference between the Low

17. Only conformist essays were analyzed, since there was no strictly comparable way of evaluating the essays of non-conformists. The purpose of the analysis was to see if there are differences between the three groups in the quality (comprehensiveness, originality, length) of their *arguments in favor of jungle books*. Such an analysis could not be made for the non-conformists, because most of them presented no arguments in favor of jungle books. There were some partial non-conformists to whom the analysis may have been applicable, but their number was too small to warrant group comparison.

Restriction and the Control groups. Thus, the Low Restriction group shows a clear advantage, especially in those ratings which involve originality, thoroughness, and convincingness. This finding is in accord with the hypothesis that the *Ss* in the Low Restriction group are more highly motivated (either because of the contingency of the reward on the quality of their performance, or because of the need to make a decision), and thus produce more supporting responses. Less directly, it is in accord with the hypothesis that the *Ss* in the Low Restriction group produce fewer interfering responses.

2. The differences between the Control group and the High Restriction group are in no case significant, just as the difference in amount of change between the two groups is not significant (see *Table VI*). It seems likely, however, that this lack of difference is a resultant of two opposing tendencies. The High Restriction group may be, on the one hand, more highly motivated than the Control group but, on the other hand, more resentful. *Ss* in the High Restriction group would, consequently, produce more supporting, but also more interfering responses, and the two would "cancel each other out".

Reactions to the experimental situation for the three experimental groups. The questionnaire on reactions to the experimental situation, which was administered at the end of the communication session (see p. 195), was especially designed to provide some information on supporting and interfering responses. If indeed there are differences in the number of supporting and interfering responses for the three groups, then one would expect their answers on this questionnaire to differ. From the three hypotheses presented above one would predict that *Ss* in the Low Restriction group will show the greatest degree of awareness of self-motivating responses while writing their essays; and *Ss* in the High Restriction group will show the greatest degree of awareness of interfering responses and the greatest amount of aggression towards the communicator.

To test this notion, the questions were divided on an a priori basis into four categories, described on p. 195. With the use of the scoring procedure developed by Ford (7), the items in each category were tested for scalability. The items that were finally used for each of the four categories had reproduceabilities higher than 90 per cent. Four indices were computed for each *S*, by the use of a simple scoring procedure.

The only index which yielded clearly significant results is the fourth one, of the extent to which *S* is aware of interfering responses while writing the essays. This index is based on the following four questions (in order, from the "easiest", i.e., the one on which the largest number of *Ss* show interference, to the "most difficult"):

1—*While you were writing your essays, were you trying to find reasons why jungle books are* worse *than fantastic hero books?*

2—*While writing your essays, did you find it hard to keep your mind on your work?*

3—*While you were writing your essays, did you wish you didn't have to do that and could do something else?*

4—*If you did think of jungle books you've read, were you thinking of how they showed that Mr.* [E 2] *was wrong, or how they showed that he was right?*

Table IX presents the mean indices for all groups after separating conformists and non-conformists. The analysis is based on the 222 *Ss* who filled

TABLE IX *MEAN INDICES OF INTERFERING RESPONSES FOR CONFORMISTS AND NON-CONFORMISTS IN EACH EXPERIMENTAL GROUP*

Treatment	*Conformists*	*Non-conformists*
Control	1·50 (N=30)	2·39 (N=44)
Low Restriction	1·22 (N=49)	1·65 (N=23)
High Restriction	1·62 (N=61)	2·60 (N=15)

out the questionnaire. The significance of the differences between the means was tested by an analysis of variance and found to be at the ·001 level of confidence. Differences between pairs of means were then tested by the t-ratio.

Table X—A presents the differences between conformists and non-conformists in each experimental group. The difference is clearly significant

TABLE X *A. MEAN DIFFERENCES IN INDICES OF INTERFERING RESPONSES BETWEEN CONFORMISTS AND NON-CONFORMISTS*

Group	*M Difference (between Conformists and Non-conformists)*	t	p*
Control	0·89	3·18	<·002
Low Restriction	0·43	1·59	<·12
High Restriction	0·98	3·38	<·001

B. MEAN DIFFERENCES IN INDICES OF INTERFERING RESPONSES FOR ALL PAIRS OF EXPERIMENTAL GROUPS

Groups	*M Difference*	t	p*
Control-Low Restriction:			
Conformists	0·28	1·17	<·25
Non-Conformists	0·74	2·31	<·03
High Restriction-Control:			
Conformists	0·12	0·52	<·61
Non-Conformists	0·21	0·62	<·54
High Restriction-Low Restriction:			
Conformists	0·40	2·00	<·05
Non-Conformists	0·95	2·71	<·01

* Both tails of the distribution of t are used.

for the Control and the High Restriction groups, but not for the Low Restriction group. In other words, non-conformity in the Low Restriction group is not associated with as much interference as it is in the other groups. This confirms the explanation which has been offered to account for the change in the direction of the communication among Low Restriction non-conformists (p. 204).

Table X—B presents the differences between the three pairs of experimental groups, for conformists as well as for non-conformists. It can be seen that *Ss* in the Low Restriction group are aware of fewer interfering responses than *Ss* in the other groups. The difference between the Low and High Restriction groups is significant for both conformists and non-conformists; the difference between the Low Restriction and Control groups is significant for the non-conformists only. This finding is in accord with the hypothesis that *Ss* in the High Restriction group are more resentful, and thus produce more interfering responses than *Ss* in the Low Restriction group. Less directly it is in accord with the hypothesis that *Ss* in the High Restriction group produce fewer supporting responses than *Ss* in the Low Restriction group.

The index of the extent to which *S* is aware of self-motivating responses that he made while conforming, and the index of aggression towards the communicator, both show trends in the predicted direction. The index of general liking of and interest in the experimental situation seems to bear no obvious relation to the experimental treatments.

In general, then, the results of the questionnaire support the hypotheses presented above. These results can be summarized as follows:

1. The *Ss* in the Low Restriction group show the smallest degree of awareness of interfering responses; this is true for conformists, as well as non-conformists. There are also trends to indicate that these *Ss* make the largest number of self-motivating responses, and are least aggressive towards the communicator.

2. The *Ss* in the High Restriction group show the most interference. There are also trends to indicate that they are most aggressive towards the communicator.[18] On the other hand, these *Ss* tend to report more self-motivating responses than *Ss* in the Control group. This supports the suggestion which was made earlier, that the lack of difference between the High Restriction and Control groups is a resultant of two opposing tendencies: The *Ss* in the High Restriction group seem to be more highly motivated than the *Ss* in the Control group, but also more resentful.

18. One question yields a significant difference between the High and the Low Restriction groups ($p<.03$, for the combined data of conformists and non-conformists): "What kind of a person do you think Mr. [*E*'s] is?" with answers ranging from "very friendly" to "very unfriendly". *Ss* in the High Restriction group rate the communicator as less friendly than in the Low Restriction group, despite the fact that he assures them of a prize. This supports the hypothesis that in the High Restriction group the *Ss* resent the communicator's pressure and view him with suspicion.

3. It can be seen from *Table X—A* that non-conformists show significantly more interference than conformists. Non-conformists also show significantly more aggression ($p<.01$) and significantly less self-motivation ($p<.01$). These findings give further support to the notion that the amount of change is related to supporting and interfering responses.

Evaluation of the three hypotheses. The three hypotheses that were described are by no means mutually exclusive. In general, the same predictions would be made from each hypothesis. Better essays for the *Ss* in the Low Restriction group could be predicted from the notion that the reward is more contingent on the quality of performance, and hence the *Ss* try harder; the notion that there is greater indecision, and hence the *Ss* have to think their position through; or the notion that there is less resentment, and hence the *Ss* make fewer interfering responses while writing their essays. The awareness of a greater number of interfering responses among the *Ss* in the High Restriction group could be predicted from the notion that the reward is not contingent on the quality of performance, and hence the *Ss* do not make any concentrated effort; the notion that there is little indecision, and hence the *Ss* do not have to do any concentrated thinking; or the notion that there is more resentment, and hence more aggressive responses are made.

Although the three hypotheses all point in the same direction, some of the details of the results could be explained more adequately by one or the other of these hypotheses.

1. The greater originality of the essays of the Low Restriction *Ss* could not be explained very well by the mere absence of interfering responses. Some active attempt to produce supporting responses, such as suggested in the reward and indecision hypotheses, seems to be present.

2. The greater number of interfering responses of an aggressive nature which the High Restriction *Ss* report could not be explained very well by the mere lack of concentration. Resentment, as suggested in the pressure hypothesis, seems to be present.

3. The poorer essays and the lower amount of change on the part of the Control group must be caused by a lower level of motivation, as suggested in the reward hypothesis. The indecision and the pressure hypotheses would not predict any differences between the Control and the Low Restriction groups, since there is indecision in the Control group, and since only minimal pressure is applied in that group.

4. The smaller number of interfering responses and the greater amount of change on the part of the Low Restriction non-conformists could only be explained by the pressure hypothesis. The other two hypotheses are essentially only applicable to conformists.

In view of these considerations, it is difficult to choose among the three hypotheses that were described. It seems most likely that all three factors contributed to the situation. Further research is needed to disentangle them. Regardless of the specific mechanisms that are involved, however, one find-

ing stands out: There are differences between the groups in the number of supporting and interfering responses that *Ss* made while performing the overt response, and these differences can be related to differences in the amount of change. It seems justified to conclude that conditions favorable to change are those in which conformity is accompanied by implicit supporting responses, and conditions unfavorable to change are those in which conformity is accompanied by implicit interfering responses.

SUMMARY AND CONCLUSIONS

The present experiment was concerned with the relationship between conformity to social norms and actual changes in attitude. This problem was studied in the specific setting of a fixed verbal communication situation. To induce conformity, the communicator introduced two degrees of response restriction. Response restriction is defined as any action on the part of the communicator which influences his audience in the direction of explicitly making the response which he favors. The experiment investigated the effects of conformity under these two conditions of response restriction on attitude change. It was felt that the amount of change would not be a simple function of the degree of conformity to the communicator's restriction, but would also depend on the conditions under which conformity takes place. It was hypothesized that conformity in the communication situation will increase attitude change to the extent to which implicit *supporting* responses are produced, and decrease attitude change to the extent to which implicit *interfering* responses are produced.

Response restriction was introduced by the use of positive incentives, i.e., the communicator induced conformity by promising his *Ss* a reward. The *Ss* were 246 seventh grade students. The procedure was as follows: 1. *Ss*' attitudes on the relative harmfulness of two types of comic books were ascertained. 2. The next day they heard a communication at variance with most *Ss*' initial attitudes. After the communication they were asked to write essays, presenting their own position. The instructions varied as follows: a—*Control group: Ss* were just asked to write their own opinions. b—*Low Restriction group: Ss* were promised a reward if they agreed with the communicator, but told that only a small percentage of the class would get the reward; it was made clear to them that non-conformity is possible and may have certain advantages. c—*High Restriction group: Ss* were promised a reward and assured that everyone who agreed with the communicator would get the reward; it was made clear that everyone was expected to conform. 3. A week later, the attitude questionnaires were readministered. The differences between the before- and after-questionnaires constitute the measure of change.

The following results were obtained. As expected, the Control group has the lowest, the High Restriction group the highest number of conformists

(i.e., *Ss* whose essays agree with the communicator's position). The amount of attitude change is not, however, directly related to the degree of conformity. The greatest amount of change is found in the Low Restriction group. The Low Restriction group changes more than the High Restriction group even though it has fewer conformists; when the proportion of conformists is statistically controlled, this difference becomes significant at the three per cent level of confidence. Also, the Low Restriction group changes significantly more than the Control group, even after there is a correction for the disproportion in number of conformists. There is no significant difference in amount of change between the High Restriction and the Control groups. On the basis of the findings summarized here it can be concluded that attitude change is not a simple function of conformity, but also depends on the conditions under which conformity takes place. The conditions of Low Restriction seem to be more favorable to change than the conditions of High Restriction.

To obtain information on the differences in the conditions of Low and High Restriction which can account for the differences in change, the quality of the *Ss*' essays was rated and their reactions to the experimental situation were analyzed. These data indicate that *Ss* in the Low Restriction group make more supporting and fewer interfering responses while writing their essays. Three hypotheses can account for these findings: 1. The more contingent the reward on the quality of performance, the more supporting responses are produced. 2. The greater the indecision, the more supporting responses are produced. 3. The greater the felt pressure, the more interfering responses are produced. Regardless of the specific mechanisms that are involved, however, it can be concluded that conditions favorable to change are those in which conformity is accompanied by implicit supporting responses (as in the Low Restriction group), and conditions unfavorable to change are those in which conformity is accompanied by implicit interfering responses (as in the High Restriction group).

The findings of this experiment have some interesting implications for the study of reference groups and the process of internalization of group norms. They suggest some of the conditions under which internalization would be expected to occur, and some of the conditions which would produce merely overt conformity. There are also some educational implications worth noting. The study provides experimental evidence for two accepted educational principles: The notion that significant learning can occur only if the student has to think through and integrate the material by himself; and the notion that lasting educational results can be achieved only if there is a positive relationship between student and teacher.

It should be stressed that the above implications are merely suggestive, and their validity can only be demonstrated by research in different settings. The generality of the present findings is limited by the kind of setting used in this experiment, i.e., the fixed communication situation. It is further

limited by some of the special characteristics of the experimental situation, such as the use of positive incentives to achieve response restriction. To broaden the generality of the findings, it is necessary to study the effects of response restriction under different conditions. For example, it would be important to see if results similar to those of the present experiment are obtained when response restriction is achieved through the use of force, threats, or high-pressure techniques.

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BIOGRAPHICAL NOTE

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