

DISTRACTION HYPOTHESIS IN ATTITUDE CHANGE: EFFECTS OF EFFECTIVENESS¹

SARA B. KIESLER AND ROBERTA B. MATHOG

Connecticut College

Summary.—A recent study by Festinger and Maccoby (1964) demonstrated that distraction raises the effectiveness of a communication. This effect may obtain because the distraction interferes with (subvocal) counter-arguing or because the distraction requires more effort to listen and thus arouses dissonance. The present experiment was designed to test these alternative hypotheses. *Ss* were exposed to 4 counter-attitudinal communications. Interference during the communication and credibility of the communicator were orthogonally manipulated. The distraction hypothesis predicted that high interference would increase communication effectiveness most under high credibility of the communicator. The effort hypothesis predicted that the greatest increase due to high interference would obtain when the communicator was low in credibility. The results supported the distraction hypothesis. In addition, interference reduced communication effectiveness under low credibility. The implication of these results for the distraction hypothesis and the effort hypothesis was discussed.

In 1964, Festinger and Maccoby hypothesized that distraction during exposure to a communication will increase the effectiveness of a communication. They speculated that persons subvocally argue against a communication that challenges their beliefs. To the extent that this counterarguing fosters derogation of the communicator or communication, persuasion will be limited. But if some distracting event interferes with active resistance, attitude change should be more probable.

To test their hypothesis Festinger and Maccoby delivered an anti-fraternity communication to fraternity members. One group was simultaneously shown a film of the speaker. A second group saw an amusing and prize-winning film about a painter while they listened to the speech. As predicted, more opinion change occurred in the latter condition. Unfortunately, there exist two other explanations for these results. The present study was designed to test the original distraction hypothesis while ruling out one alternative explanation and testing the other.

The first alternative explanation is that the movie heightened the enjoyment of the experiment and therefore favorably disposed *Ss* toward the communication. The possibility of such a "halo effect" was eliminated in the present study by making the distraction neutral or, possibly, negative.

Another alternative explanation of the Festinger-Maccoby data is more dif-

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difficult to deal with experimentally. According to dissonance theory (Festinger, 1957) the more effort a person expends in behavior inconsistent with his beliefs, the more favorable will be his subsequent evaluation of that behavior. If we can assume that distraction makes it difficult to concentrate on the communication, then the effort necessary to overcome the distraction would produce dissonance. According to the theory, attitude change would be one likely way of reducing the dissonance. (Derogation of the communicator would only increase the dissonance further.) A study by Zimbardo (1965) supports this possibility. His *Ss* read a communication under varying degrees of delayed auditory feedback. The data indicated that greater delay (*effort*) resulted in greater attitude change. Thus, any manipulation which interferes with *S*'s concentration on a communication should increase attitude change, but whether the change is attributable to distraction from counterarguing or to dissonance reduction after effort is still a matter of conjecture.

Since it is difficult, if not impossible, to manipulate "distraction" independently of "effort," we tried to resolve the problem by examining a situation in which the distraction hypothesis and the effort hypothesis make opposite predictions. This situation would exist if interference with listening to a communication and credibility of the communicator were orthogonally manipulated. In such an experiment, both the distraction and the effort model make some predictions in common. Both predict that the usual credibility effect will obtain (e.g., Hovland & Weiss, 1952), i.e., that with low interference the high credible source will be more persuasive than the low credible source. Both models would also predict greater persuasion under high interference than low interference. And, both would predict an interaction between credibility and interference conditions. But it is on the predicted direction of the interaction that the two theoretical approaches differ. These alternative predictions are graphically presented in Fig. 1.

The effort hypothesis, as noted earlier, is based on dissonance theory. Presumably, putting effort into listening to a discrepant communication adds another cognition inconsistent with one's beliefs and arouses more dissonance than when no effort is expended. This greater dissonance arousal should be reflected in greater attitude change. But if *S* expends effort in listening to a low credible speaker, dissonance should be even greater than if the speaker is highly credible. The person is now in the position of putting effort into listening, not only to a discrepant communication but to a speaker of little worth. Accordingly, any increased communication effectiveness due to interference should be greater with a low credible than with a highly credible communicator.²

²The assumption upon which this prediction rests is supported by a recent study (Jones & Brehm, 1967). In that study, when *S* chose to listen to a discrepant communication, a low credible communicator had a greater effect on attitudes than a high credible communicator.

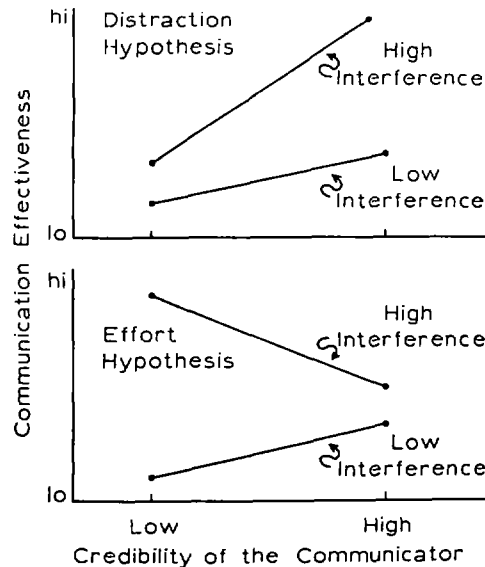


FIG. 1. Theoretical effects of interference and credibility as predicted by the distraction hypothesis and the effort hypothesis

The distraction hypothesis leads to a quite different prediction. Assuming that persons do counterargue when exposed to a discrepant communication, it might be further supposed that more counterarguing is required to resist a highly credible communicator than a low credible communicator. A speaker with little credibility is easily derogated in the initial stages of communication, whereas a very credible speaker cannot so handily be disposed of. Interference, then, would have relatively little effect if the source were low in credibility, since counterarguing should already be minimal. But interference should have a relatively great effect when the source is high in credibility, since counterarguing will normally be greater. Thus, the distraction model predicts that increased communication effectiveness due to interference will be greater with a high credible than with a low credible communicator.

The present study incorporated the design outlined above. The hypotheses are summarized below. (1) Communication effectiveness will be greater when the source is highly credible than when the source is low in credibility. (This relationship might not hold under high interference if the effort hypothesis is valid; see Fig. 1.) (2) Communication effectiveness will be greater under conditions of high interference than low interference. (3) The extent to which high interference increases communicator effectiveness will depend upon the degree of communicator credibility. The effort hypothesis predicts a greater increase under low credibility while the distraction hypothesis predicts a greater

increase under high credibility. The major purpose of the experiment was to test these alternative predictions.

METHOD

Subjects

Ss were 32 female undergraduate volunteers from Michigan State University, each paid \$1.00 to participate. The experiment was conducted during the summer session; approximately 20% of the Ss were in teacher training programs and above the usual college age.

Design

Two variables were orthogonally manipulated in an After-only design: credibility of the communicator (Low and High) and interference during exposure to the communication (Low and High). These yielded four experimental conditions. The 32 Ss were randomly assigned to four treatment groups of eight each. Each group was exposed to four different communications, each communication reflecting an experimental condition. The communications assigned to conditions were counterbalanced across treatment groups forming a 4×4 Latin square. Thus, in the four groups, each communication appeared in each condition.

Procedure

Four Ss arrived for each experimental session. At this point *E* randomly assigned each to a different treatment group. Ss heard the same speeches but each heard them under different source and distraction conditions. By varying the order of experimental conditions for each person, experimenter bias and group effects could be minimized.

E introduced the study as an investigation of "how memory functions in real life." She explained that Ss would be listening to "real people" talking about interesting topics, and they would have to try to remember the "main points" of the speeches. She explained that the speakers were from all walks of life, that they had chosen their topics from a prepared list, and had agreed to tape record a small talk expressing their attitudes.³

Before listening to the four speeches, Ss were provided with the following materials: a small numbered card, two lists of numbers, and a booklet. Each booklet was divided into four sections. The title page of each section introduced the speaker, the next page was a blank sheet for writing down the "main points" of the speech, and the following page was an 8-item "Memory Questionnaire" for measuring the dependent variable and manipulation effectiveness. At the

³Since the same speeches were used in each credibility condition, they had to be plausibly attributable to either a high or low credible person. To make this possible, Ss were told that the investigators had worked on the rough drafts prepared by the speakers and had cleaned up the grammar and style.

end of the booklet was a one-page "Post-questionnaire" asking Ss the purpose of the study to check on possible suspicion. (No Ss indicated suspicion.)

After the instructions were given, Ss listened to four different tape-recorded speeches. After pre-testing with a number of issues, we chose four one-sided arguments which female college students had indicated were very much against their beliefs. These were: "College students should be required to wear uniforms," "Married students should not be allowed to attend day-time college classes," "Classes should be segregated by sex at coed universities," and "College students should have bed check for their first two years."

After each talk, Ss wrote down its main points on the blank sheet and then filled out the questionnaire. At the end of the session Ss were advised of the real purpose of the study and all questions were answered. They were sworn to secrecy but were told they could tell a persistent friend that the study was on "memory of speeches." Judging from Ss' reports, this method was very effective in maintaining secrecy.

Experimental Manipulations

When delivering the instructions, E told Ss that during two of the speeches they would have an extra task ("because sometimes in real life we have to do two things at once"). The two speeches during which the task was to be performed were identified by cards on Ss' desks. The task involved copying lists of two-digit numbers. Adjacent to each number, Ss were to copy the number listed directly below. Thus, during two of the four communications Ss worked on a copying task (High Interference), and during two others were not disturbed (Low Interference).⁴ In each experimental session each S performed the copying task during a different combination of speeches. The cards identifying on which speeches the task was required were randomly passed out face-down so that E remained unaware of which S received which card.

Credibility of the communicator was manipulated by varying the title pages in the booklets. Each title page gave the name of the speaker and some information about him. These pages, as noted above, were placed in different orders for each treatment group. The Low Credibility speakers were "Mark Smullen, a parking lot attendant for a local theatre in New Haven, Conn." and "Robert Camera, a high school drop-out who is now employed as a maintenance man in a laundromat." The High Credibility speakers were "Dr. John Canfield, who recently received his M.D. from the University of Michigan and is now employed at the Health Center at the University of Chicago" and "Michael Richardson, Rhodes Scholar from the University of Pennsylvania."

⁴N. Miller and R. Bacon in an unpublished paper, "Communicator credibility as a mediator of 'distraction' effects in studies of persuasion," have argued that distraction manipulations utilizing instructions to evaluate the personality of the speaker (as in Allyn & Festinger, 1961) may result in increased attitude change but that the change can be attributed to differential enhancement of credibility. Our copying task was designed to avoid this complication, as well as to prevent its increasing enjoyment of the situation.

To summarize, four counter-attitudinal communications were presented to Ss. After each communication, Ss completed a memory test and a questionnaire. The communications were given under two levels of communicator credibility. Cross-cutting this manipulation were two levels of manipulated interference. This 2×2 design was incorporated into a Latin square which counterbalanced communication-condition combinations.

RESULTS

Effectiveness of Manipulations

Two items on the questionnaires measured the effectiveness of the interference manipulation, "How difficult was it to concentrate?" and "How difficult was it to remember the main points?" Ss placed arrows on scales marked at one end, "very difficult," and at the other, "not difficult at all." These items, as with all others on the questionnaire, were arbitrarily scored from 1 to 45. An analysis of variance (Winer, 1962, pp. 538-543) indicated a marginal interference main effect for difficulty of concentrating ($F = 3.04$, $df = 1/84$, $p < .10$) and a significant effect for difficulty of remembering ($F = 8.17$, $df = 1/84$, $p < .01$), both in the predicted directions. Also, the analyses showed a significant residual indicating that the manipulation was differentially effective for different topics. The latter finding, however, is of no interest and might be attributed to unintentional differential repetitiveness among the speeches. There were no differences among conditions in the number of arguments actually remembered. The manipulation, then, created a differential perception of distraction but was not so strong as to affect performance.

The credibility of the communicator was measured by the first three items on the questionnaire. No differences were obtained for questions asking how likeable the speaker was, and how fair or biased he was. But there was a significant tendency for High Credibility speakers to be perceived as more well-informed than Low Credibility speakers ($F = 27.07$, $df = 1/84$, $p < .01$). The implication of this result is that the credibility manipulation was not complex, effectively discriminating the speakers on one of the dimensions measured.

As with any After-only design, the check on communicator credibility was confounded with perceptions of the communicator (i.e., derogation) which may have been influenced by the communication. The reader, however, may note the face validity of the manipulation and the strength of the main effect reported above. There was a slight interaction of credibility with interference on the well-informed item, indicating some confounding with derogation. But this interaction was not significant and does not alter the results on communication effectiveness reported below.

The tape-recorded communications were differentially effective ($F = 4.09$, $df = 3/84$, $p < .05$) but this result may also be due to sequence effects which were confounded in the design. In any case, these data are of minimal interest.

Communication Effectiveness

Two items on the questionnaire were designed to measure the effectiveness of the communications. They were worded as follows to avoid suspicion that the study involved attitude change. Item 5 asked *S* to indicate how she felt about the issue (e.g., "How much do you agree with the speaker that college students should wear uniforms"). Item 6 asked her how convincing the speaker had been. The latter item was intended as a relatively indirect measure of attitudes toward the issue. Previous studies (e.g., Kanous & Abelson, in press) suggest that *Ss* are more willing to express attitudes on indirect items. The pooled within-cell correlation between the two items was .74, demonstrating highly overlapping measurement. In view of this high correlation, the items were summed for each *S* to get a total communication effectiveness score. These data are presented in Table 1.

TABLE 1
MEAN COMMUNICATION EFFECTIVENESS AS A FUNCTION OF CREDIBILITY
AND INTERFERENCE*

Interference	Credibility of the Communicator			
	Low		High	
	<i>M</i>	<i>S</i> ²	<i>M</i>	<i>S</i> ²
High	22.91	208.80	35.53	297.35
Low	28.84	319.94	30.44	328.13

*Means are based on normalized scores. The higher the mean, the greater the effectiveness.

Analyses of variance were performed on the communication effectiveness scores. Since the agreement scores were highly skewed (*Ss* tended not to use the positive end of the scale), the scores on the items were standardized to yield *T* scores before they were combined. All analyses were performed on the normalized data and the means presented in Table 1 are derived from the normalized scores.⁵ The analysis of variance is presented in Table 2.

Let us first examine the results for which the effort and distraction hypotheses make common predictions. Hypothesis 1 predicted that highly credible speakers would be more effective than low credible speakers. This hypothesis was supported. The main effect was significant at less than the .01 level ($F = 7.40, df = 1/84$).

Hypothesis 2 stated that communications would be more effective when *Ss* were distracted than when they were not. This hypothesis was not supported. From Table 1 we can see why: the effect of interference depended upon the level of credibility.

Hypothesis 3 predicted an interaction such that High Interference would be

⁵Analyses of variance were also performed on the separate items. The same results were obtained for each, but the results for the convincingness item were slightly stronger.

TABLE 2
SUMMARY OF ANALYSIS OF VARIANCE OF COMMUNICATION EFFECTIVENESS SCORES

Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between <i>S</i> s				
Groups	3	161.84		
Subjects within groups	28	454.00		
Within <i>S</i> s				
Communications	3	893.28	4.09	<.05
Credibility	1	1,617.38	7.40	<.01
Interference	1	5.70		
Credibility × Interference	1	973.51	4.45	<.05
Residual	6	274.03	1.25	
Error Within	84	218.56		

differentially effective depending upon the level of credibility. In this situation, the effort hypothesis and distraction hypothesis made opposite predictions. The results were in the direction predicted by the distraction hypothesis. High Interference raised communication effectiveness under High Credibility but not under Low Credibility ($F = 4.45$, $df = 1/84$, $p < .05$).

The increase due to High Interference in the High Credibility conditions did not quite reach significance by *t* test. On closer examination, however, the difference between conditions seemed to be mitigated by a few extreme scores in the opposite direction to that predicted. Therefore, a sign test was performed on the data. This test produced a *z* of 2.34, significant at less than the .01 level. High Interference also lowered communication effectiveness under Low Credibility. The sign test on this difference produced a significant *z* of 2.78. The latter result, while not inconsistent with the distraction notion, was unexpected.

DISCUSSION

Distraction Hypothesis

The purpose of this study was to test the distraction hypothesis against the effort hypothesis in a communication-exposure situation. The distraction hypothesis predicts that when counterarguing is relatively great (i.e., when the communicator is highly credible) distraction will increase the effectiveness of a communication. Our results supported this prediction. The distraction hypothesis, as originally stated, also predicts little or no effect of distraction when counterarguing is minimal, as when the communicator is not very credible. But in this experiment distraction lowered communication effectiveness when the communicator was low in credibility. As McGuire (1966) has noted, a simple learning theory would predict just such an effect due to the greater difficulty of concentration under interference conditions. But an adequate explanation must account for the lowering of effectiveness only under low credibility. One possi-

ble reason is that our interference manipulation was so weak that it distracted only those who were intensely counterarguing. Supporting this notion is the fact that interference was not strong enough to produce differences in memory. Another possibility is that credibility in the Low Credibility conditions was so low that Ss immediately derogated the communicator, dismissed the communication as unworthy, and never bothered to counterargue at all. If so, no distraction effect would obtain. Both of these interpretations explain why High Interference did not raise communication effectiveness under Low Credibility but neither accounts for the significant decrease in effectiveness due to High Interference.

Another, more inclusive, interpretation is that distraction has two effects: one, that it interferes with counterarguing, and two, that it annoys Ss who are trying to listen to the communication as instructed. If so, their displeasure may generalize to the communication and work against the positive effect of distraction. (Indeed, in the Festinger-Maccoby study the strength of the results may be partly due to the pleasantness of the distraction manipulation.) One might argue, then, that when little or no counterarguing occurs, as when the communicator is low in credibility, distraction will have no effect or even a negative effect.

We conclude that distraction will have a positive effect on communication effectiveness when counterarguing is relatively intense and that distraction may have a negative effect when counterarguing is minimal if Ss perceive it as annoying or unpleasant. Our case, however, rests upon an assumption not directly tested: that counterarguing is greater under high credibility than low credibility. In the only study we know of which directly measured counterarguing (Brock, 1967), the credibility variable was not manipulated. But in that study counterarguing did seem to be related to the apparent "logical" need to summon up arguments against the communication. Counterarguing was significantly greater when the communication was more discrepant and when the communicator had an intent to persuade. It is reasonable to suppose that the need to summon up defenses against the communication is also greater the more credible the communicator, because he is more likely to have superior arguments and to be a persuasive speaker.

More indirect support for our contention that distraction is effective only when counterarguing is relatively intense—and that it is more likely to be intense when the communicator is highly credible—comes from those previous studies which demonstrated a distraction effect. We have already mentioned the Festinger and Maccoby study. In that study the communicator was presented as a college professor. A pre-communication measure of attitudes toward him was not presented, but certainly a professor was relatively credible to their college student Ss. And he should be far more comparable to our High Credibility speakers (a doctor and a Rhodes scholar) than to our Low Credibility speakers (a high school drop-out and a parking-lot attendant).

The other study on distraction (Freedman & Sears, 1965) manipulated the extent to which high-school seniors were told to pay attention to a communication on teen-age driving. The communicator in this study was "Dr. Vernon Allen, a noted expert on automobiles, highway administration and driving in general . . ." (p. 263). So here, too, a distraction effect (in this study, not very strong) was demonstrated when the speaker was of relatively high credibility.

In sum, there are three studies demonstrating a distraction effect. Each effect was produced when the speaker was of high credibility. In the only study manipulating credibility, the effect was demonstrated only under high credibility. These data, together with Brock's (1967) suggestive results on counterarguing strongly support the distraction hypothesis: that distraction interferes with counterarguing and thus increases the effectiveness of a communication. The more a person counterargues, the greater is the likelihood that distraction will enhance communication effectiveness.

Effort Hypothesis

Our results did not support the alternative hypothesis for the Festinger-Maccoby data. The interaction was in a direction opposite to that predicted by dissonance theory (see Fig. 1). Dissonance theory, and more specifically the effort hypothesis derived by Zimbardo (1965), does not appear to account for the effects of distraction. Our study tested the effort hypothesis in a communication-exposure situation but was not designed to test the more general effort hypothesis. While we produced conditions sufficient to show a distraction effect, we may not have effected the appropriate conditions for arousing dissonance. For example, effort may arouse dissonance only when *S* is actively engaged in role playing, as in the Zimbardo study. Or, perhaps *S* must perceive some choice in engaging in effortful behavior. These conditions, we think, would psychologically commit *S* to effort and raise the number of cognitions inconsistent with his beliefs. In our study *Ss'* copying task required no special concentration, thought, or choice, and it was completely irrelevant to the communication.

This does not rule out the possibility that distraction contributed to Zimbardo's results. The present study, and the other distraction studies cited, suggest that the distraction effect may have accounted for the data attributed to dissonance reduction. Or both may have worked in concert. Further research is needed to answer this question.

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