

Persistence of Opinion Change Induced Under Conditions of Forewarning and Distraction

William A. Watts
Department of Education
University of California, Berkeley

Lewis E. Holt
Stanislaus State College

Ninety-six high school students participated in a study investigating the immediate and delayed effects of forewarning of persuasive intent. It was predicted that subjects would change less immediately after reading persuasive communications because the forewarning would serve as a discounting cue, but that over time, they would tend to forget or dissociate this cue, thus allowing the full impact of the communication to emerge. The results strongly supported this hypothesis.

A second experiment involving 104 high school students was conducted to replicate the first study and to extend the same reasoning to the case of distraction. Distraction was expected to facilitate immediate opinion change, presumably because of interference with counterarguments; but because of its detrimental effect on comprehension and a presumed tendency for subjects to think of opposing arguments after leaving the experimental situation, the change was expected to dissipate more rapidly than in the nondistracted conditions. The data confirmed predictions regarding both forewarning and distraction.

Although forewarning of persuasive intent has been studied extensively (e.g., McGuire, 1966, 1969; McGuire & Papageorgis, 1962; Papageorgis, 1968; Petty & Cacioppo, 1977), there have been no reported investigations of its long-term, or delayed, effects. If forewarning has an immediate detrimental effect on opinion change, which is by no means universally found (e.g., Papageorgis, 1968), there is reason to believe that the inhibiting influence will dissipate over time, thus allowing a greater delayed than immediate impact of the message. That is, if forewarning leads subjects to think of counterarguments either before or while reading a communication (e.g., McGuire & Papageorgis, 1962; Petty & Cacioppo, 1977), arouses psychological reactance (Brehm, 1966; Hass & Grady, 1975),

or causes the subjects to perceive the communicator as less fair (e.g., Hass & Grady, 1975), an immediate reduction in persuasive impact should result. However, unless the forewarning significantly interferes with learning the message content, which seems unlikely (e.g., Freedman & Sears, 1965), subjects may tend to forget or spontaneously dissociate these initial reactions over time, thus allowing the full persuasive impact of the material to emerge. For example, Hass and Grady (1975) point out that despite the presence of reactance, one may be persuaded by the informational value of the arguments presented by the communicator. It would logically follow that given compelling arguments, once the initial reactance subsides, the impact of the information should produce increased opinion change over time (e.g., Gruder et al., 1978). Similarly, if forewarning tends to create the perception of a biased communicator (e.g., Hass & Grady, 1975), as this discounting cue becomes dissociated from the message over time, a delayed increase in agreement might be expected. This is analogous to the

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Requests for reprints should be sent to William A. Watts, Department of Education, University of California, Berkeley, California 94720.

original interpretation of the sleeper effect in persuasion (Hovland, Lumsdaine, & Scheffeld, 1949).

Issue Involvement as a Factor in Forewarning

In attempting to account for the conflicting results in studies of forewarning, Papageorgis (1968) has differentiated between cases involving the mere prior announcement of the topics and directions of persuasive communications, termed "warnings," and those in which the subjects are specifically told that the experiment deals with persuasion, dubbed "persuasion contexts." He hypothesized that persuasion contexts served to reduce the impact of communications about issues with high involvement or those that concern controversial topics or make emotional appeals, whereas for communications about issues with low involvement or those that argue about cultural truisms or make factual appeals, persuasion contexts have no more effect than disguised (no forewarning) contexts when other characteristics of the persuasion situation are neutral.

There are at least two theoretical reasons for expecting different results for issues of high and low involvement: (a) Psychological reactance (Brehm, 1966) should be greater for important issues, and (b) subjects are probably less able and/or motivated (e.g., Vinokur & Burnstein, 1978) to think of counterarguments in the case of cultural truisms or esoteric topics. Dean, Austin, and Watts (1971) found no support for these conjectures; however, their studies were limited in the sense that each employed only two issues—one high and the other low in involvement. Naturally, the topics varied in a number of other respects that may have influenced the obtained results.

In the present study, eight issues were used in an attempt to minimize the aforementioned problem: Four dealt with familiar, controversial issues; and the others, with esoteric topics. An example of the former would be the proliferation of nuclear weapons, and of the latter, the increasing length of the geological day. If the reasoning of Papageorgis (1968) and perhaps that of Apsler and Sears (1968) is correct, the immediate effects of

forewarning should be to inhibit change on the familiar topics and to facilitate it or have no effect on subjects' opinions concerning the esoteric issues.

The first study was designed to test these conjectures. Since each subject read messages on four different topics, it was not feasible to warn them of the positions advocated in each case. Rather, subjects were warned of the persuasive intent (Papageorgis, 1968) of the materials they were about to read. This manipulation has been used in several previous studies (e.g., Hass & Grady, 1975; Kiesler & Kiesler, 1964). Under these circumstances there is no opportunity for anticipatory counterarguing (Petty & Cacioppo, 1977); consequently, there is no reason for a delay between forewarning and receipt of the messages (e.g., Hass & Grady, 1975). Similarly, there is little opportunity for anticipatory belief change (e.g., McGuire & Millman, 1965), since the subjects are unaware of the topics and positions advocated until the message are received.

Distraction as a Variable Influencing Persistence of Opinion Change

A second study focused on the single and joint effects of forewarning and distraction. Whereas forewarning has been shown previously to facilitate production of counterarguments (e.g., Petty & Cacioppo, 1977), distraction apparently interferes with this process (e.g., Baron, Baron, & Miller, 1973; Festinger & Maccoby, 1964; Osterhouse & Brock, 1970; Petty, Wells, & Brock, 1976). Therefore, distraction should influence positively the yielding component of persuasion (e.g., McGuire, 1968, 1969; Wyer, 1974, chap. 7), thus rendering the person more susceptible to influence if the message is adequately comprehended.

However, there is considerable evidence that distraction also interferes with comprehension (e.g., Haaland & Venkatesan, 1968; Petty et al., 1976; Regan & Cheng, 1973; Zimbardo, Snyder, Thomas, Gold, & Gurwitz, 1970). Whenever a variable influences the reception and yielding components of persuasion in opposite directions, the resultant effect often may be nonmonotonic (e.g., McGuire,

1968, 1969; Wyer, 1974, chap. 7). That is, a moderate amount of distraction will facilitate opinion change because the reduction in counterarguing more than offsets the decrement in comprehension. As distraction increases, however, the loss in comprehension should become greater, thus leading to a decrease in opinion change, since, in the extreme case, one cannot conform to the position advocated in the communication without understanding the side taken. Even though the immediate effect of distraction may be to facilitate opinion change, there are at least two reasons to expect the gain to be short-lived. First, several prior studies indicate that experimental treatments affecting initial learning influence persistence of induced opinion change as well (see Cook & Flay, 1978). Thus, the decay in opinion change may be quite rapid, depending on the extent that distraction interferes with comprehension. Note that in the case of distraction, consideration of its effects on comprehension lead to the exact opposite prediction of that derived for forewarning, namely, that the induced opinion change would dissipate more rapidly for distracted subjects because of poorer learning of the message content.

Another reason for more rapid decay of opinion change under conditions of distraction hinges on postexperimental counterarguing. Once the subject has left the experimental room, he or she is free of distraction and in a position to reflect on the persuasive messages. It seems likely that in the process, the individual would be able to think of a greater number of opposing arguments that would serve to dampen his/her newly formed opinion. Naturally, the people who were not distracted may also cogitate upon the issues afterward and think of additional counterarguments. However, the latter should be smaller in number and have less impact because these individuals would already have considered many of the counterarguments during the experimental session and have taken them into account at that time (e.g., Vinokur & Burnstein, 1978; Vinokur, Trope, & Burnstein, 1975). Actually, the distracted subjects may be more motivated to think

about the topics after the experimental session, since reading communications under conditions of distraction may require greater effort (e.g., Baron et al., 1973), and if subjects have worked harder on a task, it would seem likely that they would feel increased involvement.

To test these conjectures, in the second study, forewarning versus no forewarning plus distraction versus no distraction were varied orthogonally so that their single and joint effects on immediate and delayed opinion change could be examined.

Experiment 1

Method

Subjects and Design

The subjects consisted of 96 students from four senior-level high school classes who participated in both sessions of the experiment, separated by a 1-week interval, during their normal class periods. There were approximately equal numbers of males and females.

Eight messages were randomly divided into two subsets of four each with the restriction that they had to contain two familiar and two esoteric topics. These forms of the materials were alternated. Subjects read one of the subsets of persuasive messages and then stated their opinions on all eight issues. Hence, each person served as an experimental subject on four issues and as a control on the remaining four topics. A $2 \times 2 \times 2 \times 2$ factorial design was used involving one between-subjects variable (forewarning vs. no forewarning) and three within-subjects variables (message type: esoteric vs. familiar, time of measurement, and experimental vs. control). The order of presentation of the two types of messages was counterbalanced. Since subjects were randomly assigned to experimental treatments, a posttest-only design was employed, inasmuch as a pretest itself would serve to some extent as a forewarning of persuasion.

Procedure

The study was represented as an investigation of factors related to learning and retention of written communications. It was explained that such factors as the controversy of the topics and whether essays were written in an emotional or factual manner were thought to play important roles in determining learning efficiency and recall of message content. In the first session, subjects read four persuasive communications, each averaging about 300 words in length. Two of the messages in each set dealt with

familiar, somewhat controversial topics, whereas the other two concerned esoteric issues.¹

The forewarning manipulation was incorporated into the written materials to facilitate random assignment of this variable to subjects within a given class. Approximately one half of the subjects received instructions indicating that the messages were designed to change their opinions on certain issues. The directions were worded as follows:

On the following pages you will find four passages; they are designed to persuade you. Each message will attempt to change your opinion about a particular topic. To ensure a careful reading, please pick out and underline the shortest phrase, or phrases, in each paragraph which convey the idea expressed. As you know, we are interested in the manner in which subject matter affects information processing; and its persuasive intent is thought to be one important factor. Your close attention to the task will contribute to a more adequate understanding of the process. Thank you.

In the instructions for the nonforewarned subjects, all references to the persuasive intent of the materials were deleted, and the previous verbal statement regarding the influence of familiarity and controversiality in information processing was repeated. The time interval between warning and exposure to the persuasive materials was no more than a few seconds, which Hass and Grady (1975) have shown is quite adequate.

After the four messages were read and the materials collected, subjects' opinions were assessed on all eight issues, thus providing no message control data for four topics. The justification of the opinion measurement was in terms of obtaining indices of controversiality of the issues for the population being studied. Opinions were measured on 100-point probability-of-truth scales calibrated in units of 10, ranging from 0 (Very improbable) to 100 (Very probable). The rating scale was presented immediately below each statement. One opinion item pertained to each topic. Examples include "The number of countries producing nuclear weapons is increasing rapidly" and "A substantial falling off in consumer purchasing power in the United States is presently occurring." After the opinion ratings had been collected, each subject completed a multiple-choice test of comprehension, with three items pertaining to each issue. In addition, subjects rated, on 7-point scales, how fair the articles were, how interesting they found the subject matter, and to what extent they were thinking of opposing arguments as they read the communications. Afterward, all subjects were thanked for their participation, and no mention was made of any follow-up testing.

In the second session, after a 1-week interval, subjects again supplied opinion ratings and completed the comprehension test. Thereafter, the true purpose of the study was explained. Since the experiment was represented as one dealing with comprehension and retention of message content as functions of

controversiality and other characteristics of the material, the second request for opinion ratings was justified on the basis of providing indices of temporal fluctuations, since controversial issues are often quite changeable.

Results and Discussion

The opinion data were analyzed with a $2 \times 2 \times 2 \times 2$ factorial analysis of variance consisting of one between-subjects variable (forewarning vs. no forewarning) and three within-subjects variables (message type: esoteric vs. familiar, time of measurement, and experimental vs. control). To facilitate analysis, data from two subjects in the forewarned condition were randomly discarded in order to obtain equal cell frequencies. The overall persuasive impact of the messages and the effects of the experimental treatments were determined by comparing the final opinion scores for the message topics with the no-message control scores. Within the familiar and esoteric message conditions, subjects' opinion scores were averaged across the two issues.

Message Effects

The overall persuasive effect of the messages, without regard to experimental conditions, was impressive, $F(1, 92) = 62.92, p < .01$, for the main effect of experimental versus control treatments. As expected, subjects changed their opinions considerably more on the low-involvement, esoteric issues than on the familiar, more involving ones; $F(1, 92) = 13.75, p < .01$, for the interaction effect of message type in the experimental versus control conditions. Although the interaction between forewarning and experimental versus control conditions was significant, $F(1, 92)$

¹ The four familiar topics dealt with the proliferation of nuclear weapons, economic aid to developing African nations, the increasing number of professionally trained ministers in the United States, and the current decline in consumer purchasing power. The esoteric issues concerned the increasing length of the geological day, the effectiveness of a new drug on the peripheral vascular circulation in humans, the amount of fuel and power in Zambia, and the influence of New York City banks on the yield of U.S. government bonds.

Table 1
Mean Opinion Scores for Each of the Experimental and Control Conditions

Condition	Familiar issues				Esoteric issues			
	Not forewarned		Forewarned		Not forewarned		Forewarned	
	Imme- di- ate meas- ure- ment	Delayed meas- ure- ment	Imme- di- ate meas- ure- ment	Delayed meas- ure- ment	Imme- di- ate meas- ure- ment	Delayed meas- ure- ment	Imme- di- ate meas- ure- ment	Delayed meas- ure- ment
Experimental	72.76	61.92	61.38	65.74	73.40	63.19	57.34	63.62
Control	55.32	55.21	63.62	60.32	44.04	49.36	45.42	49.68

Note. These means are averaged across the two similar issues in each condition and are based on 100-point scales ranging from 0 (Very improbable) to 100 (Very probable). Cell *ns* = 47.

= 9.93, $p < .01$, the second-order interaction involving forewarning, message type, and experimental versus control conditions that would be expected from the work of Papageorgis (1968) was trivial ($F = .10$). That is, although subjects changed their opinions much more when the topics were low rather than high in involvement, compared to no-message controls, the inhibitory effects of forewarning were the same for both types of issues. While the data offered no support for Apsler and Sears' (1968) multiplier hypothesis, one should keep in mind that these investigators warned subjects of the specific topics and sides to be taken, whereas we simply forewarned them of persuasive intent without specifying the topic or side. Finally, in retrospect, it seems that perhaps even the familiar issues were relatively low in personal involvement, particularly for the population studied. This may explain the weakness of some of the anticipated effects.

Persistence of Forewarning Effects

The primary hypothesis tested in the present study involved the interaction between forewarning and time of measurement. It was predicted that forewarning would inhibit the immediate change resulting from the persuasive communications, but that this effect would be short-lived, and over time, the forewarned group would show an increment as the forewarning is forgotten or spontaneously dissociated, whereas those subjects who were

not forewarned would show a typical decay. The test for this hypothesis is the Forewarned \times Time \times Experimental versus Control interaction, which was significant beyond the .01 level, $F(1, 92) = 22.12$. The pattern of means displayed in Table 1 shows that the direction of this interaction was as predicted, with subjects who were forewarned showing an initial decrement of 13.72 points, averaged across message type, compared to those individuals who were not forewarned, and, indeed, changing only trivially more than the no-message controls. After a week elapsed, however, the forewarned subjects had shown an absolute increase of 5.32 points and were now slightly higher than the nonforewarned group and substantially higher than their controls. Although the data show a relative sleeper effect (Cook & Flay, 1978), the increase did not reach significance when tested by Dunn's (1961) method; thus, an absolute sleeper effect was not obtained.

It is interesting to note the similarity of the delayed measurement means for the experimental treatments, indicating that regardless of the immediate effects of forewarning, the long-term (1-week interval) results are about the same as for subjects who were not forewarned. The findings cannot be attributed to all persons reverting to the control level during the time interval, since the overall delayed experimental mean, aggregated across treatments, was much higher than for the similar control conditions (e.g., 63.62 versus 53.64).

Forewarning Effects on the Control Issues

As stated in the introduction, it would have been virtually impossible for anticipatory belief change (such as that observed by McGuire & Millman, 1965, and others) to have occurred in the present study, since neither the topics nor the positions advocated were known prior to being read by the subjects. It is quite conceivable, however, that the forewarning might have led to some general reaction at the time of completing the postexperimental test, particularly since each subject served in both the experimental and control conditions. It can be seen in Table 1 that control subjects in the forewarned conditions were more favorable toward the familiar issues, both immediately afterward and during the delayed testing, than those subjects who were not forewarned; but no such effect occurred for the esoteric topics.

Dinner, Lewkowicz, and Cooper (1972) found greater change in high-self-esteem subjects anticipating communications concerning familiar topics, presumably so they would avoid appearing gullible. While Dinner et al. announced the topics and sides to be taken, it is possible that in the present study, subjects surmised the directions that would be advocated on the control issues and responded accordingly to avoid subsequent change should they later receive communications on these topics. However, considering the relative lack of sophistication of the high school subjects, it seems far more probable that this was just a chance occurrence, particularly since it did not appear for the esoteric topics and was not replicated in the second study for familiar issues.

Comprehension

These data were analyzed in the same manner as the opinion scores, with subjects' responses averaged across the two topics within each experimental condition. Naturally, there were no control scores for this variable, since subjects could only be asked to recall what they had read. The data indicated a slight superiority across time for students in the forewarned conditions, who obtained a mean of 1.40 correct responses out of a possible 3,

compared to 1.17 correct for those who were not forewarned. The difference between these means is of borderline significance $F(1, 92) = 3.85, p < .06$. Forgetting during the 1-week interval was trivial ($F = 1.02$), and the only other significant effect was markedly superior memory for the familiar, compared to the esoteric, issues, $F(1, 92) = 24.60, p < .01$.

Reactions to the Persuasive Communication

Three questions were included in the immediate posttest to measure subjects' reactions to the persuasive communication: "How fair and unbiased did you find the communications?"; "How interesting did you find the messages?"; and "As you read the messages, to what extent did you find yourself thinking of arguments on the other side?" Subjects responded to each question by checking a 7-point scale ranging from 1 (Not at all) to 7 (Very).

Only the differences in ratings of fairness reached significance ($t = 3.07, p < .01$), with subjects who had been forewarned of the persuasive nature of the communications rating the contents as considerably less fair and unbiased ($M = 3.20$) than their nonforewarned counterparts ($M = 4.28$).² These results are similar to those found by Dean et al. (1971) with regard to messages attributed to positive sources and provide further corroboration for the discounting cue interpretation of the obtained sleeper effect in the forewarned condition. Although the obtained means for counterarguing were in the expected direction (4.00 for forewarned subjects vs. 3.46 for those persons not forewarned), the difference did not approach significance and offered no support for the conjecture that subjects whose defenses had been aroused by forewarning would think of more counterarguments while reading the communications.

In summary, these data provide strong

² Since these last three questions appeared separately on the last page of the booklet, some subjects apparently overlooked them and failed to respond. Consequently, the cell *ns* were reduced to 45 for the forewarned individuals and 36 in the case of those persons who were not forewarned.

evidence for the predicted sleeper effect due to forewarning of persuasive intent. They are readily interpreted in terms of forewarning serving as a discounting cue to acceptance without interfering with learning—a cue that over time (1 week) subjects are likely to forget or spontaneously dissociate, thus allowing the persuasive materials to reach their full impact. Indeed, this method of studying the sleeper effect may be superior to the classic approach of attributing a compelling message to a negative source, since the latter often must arouse feelings of incredulity on the part of the subjects.

Experiment 2

The second study was designed to replicate the first and, in addition, to test the conjecture that while moderate distraction may facilitate immediate opinion change, the latter will rapidly dissipate, because once removed from the distraction conditions, the person will think of additional counterarguments to the communications, and, to some extent, comprehension of the persuasive messages will have been impaired. Each of these factors should operate to shorten any immediate advantages realized.

Method

Subjects and Design

One hundred four high school students participated in both sessions of the experiment, which were held 1 week apart, during their normal class periods. The number of males and females was divided about equally. Each subject read two out of four persuasive messages and then stated his or her opinion on all four, thus providing control scores for two issues. Only one of the issues was read under conditions of distraction, and subjects were either forewarned or not for both issues.

A posttest-only design was employed, with subjects randomly assigned to the experimental conditions. Since distraction was a within-subjects variable, the order of presentation of the two messages (under conditions of distraction and nondistraction) was counterbalanced. The two levels of forewarning and distraction and the two times of measurement constituted a $2 \times 2 \times 2$ factorial design with one between-subjects (forewarning) and two within-subjects treatments. An equal number of subjects (52) served in each condition.

Procedure

As in Experiment 1, the study purported to investigate the effects of types of reading material on retention of message content.

In the first session, each subject read two (randomly selected from a set of four) persuasive messages averaging about 300 words in length. These communications dealt with current topics of moderate familiarity, namely, economic aid to African nations, consumer purchasing power in the United States, the increasing number of trained ministers, and proliferation of nuclear weapons. One message was read under normal circumstances and the other under distraction conditions. The distraction was designed to be relatively neutral and consisted of printing the messages in white type on a black background, rather than the conventional black on white. Pretests had shown that this reverse negative procedure was indeed distracting without being annoying, at least for the relatively short periods of time involved.³ Furthermore, the distraction was quite consistent with the rationale given that the study investigated the influence of such factors on comprehension.

As in the previous study, the forewarning manipulation was incorporated into the written materials in order to facilitate random assignment of subjects within a given class to the different experimental conditions. For one half of the subjects, the instructions forewarned that the communications were designed to change their opinions on certain issues. For the other half, these statements were deleted; otherwise the same directions were issued to the forewarned and nonforewarned groups. All other aspects, including the purported rationale for the second opinion ratings and comprehension testing were identical to those in Experiment 1. Of course, as before, the true purpose of the experiment was eventually revealed.

Results

In the first study, the types of messages introduced the possibility that subjects could hold different initial opinions for the esoteric and familiar topics, as indeed was the case. Therefore, inclusion of the control data was necessary for the main analysis. Since no such variables were included in the second study, and there was no counterpart for the distraction manipulation under the control

³ The materials were pretested by asking subjects to rate the extent to which they found themselves distracted or annoyed. In addition, immediate comprehension was found to be poorer for the distracted subjects—a characteristic that has been associated with distraction in several other studies.

conditions, the data for the experimental conditions were analyzed separately; and comparisons were made with the controls only when they were theoretically interesting.

Persistence of Forewarning and Distraction Effects

The opinion means for each of the experimental conditions are presented in Table 2, where it can be seen that the data generally conform to the predicted pattern.

An analysis of variance with repeated measures indicated a main effect of time of measurement, $F(1, 102) = 39.02$, $p < .01$, with subjects being less favorable after a week had elapsed; and significant interactions appeared between both forewarning, $F(1, 102) = 6.77$, $p < .01$, and distraction, $F(1, 102) = 34.55$, $p < .01$, and time of measurement. Furthermore, the second-order interaction involving all three variables was significant beyond the .01 level, $F(1, 102) = 7.69$.

The directions of the first-order interactions were as predicted: Forewarning initially inhibited opinion change, but this disadvantage vanished over time; and distraction facilitated immediate opinion change, but the initial advantage rapidly dissipated. The significant second-order interaction appears to be due primarily to the fact that in the immediate-measurement condition, the distraction completely nullified the effects of forewarning, yielding a difference of more than 20 points between the distracted and non-distracted subjects' means. This fact is particularly interesting, since it is exactly what would be expected if the major mediating variable was the number of counterarguments produced. That is, if the inhibiting effect of forewarning of persuasive intent is primarily due to the increased production of counterarguments while reading the messages, then, when subjects are distracted from counterarguing, the usual effects produced by forewarning should be nullified.

It is of interest to determine whether the data replicate the earlier finding of a sleeper effect interaction between forewarning and time of opinion measurement when subjects are not distracted. The relevant data are con-

Table 2
Mean Opinion Scores for Each of the Experimental and Control Conditions

Condition	Not forewarned			
	Measurement		Forewarned Measurement	
	Imme- diate	De- layed	Imme- diate	De- layed
No distraction	70.77	63.85	53.85	61.73
Distraction	75.38	59.42	74.42	57.12
Controls	54.42	54.23	47.12	44.52

Note. These means are based on 100-point scales ranging from 0 (Very improbable) to 100 (Very probable). Cell *ns* = 52.

tained in the no-distraction conditions of Table 2 (identical to the earlier study). The immediate effect of forewarning of persuasive intent was to reduce substantially the impact of the messages ($M_s = 53.85$ vs. 70.77 in the nonforewarned conditions). After a week's delay, however, this initial difference had all but disappeared, with the forewarned group showing an increase of 7.88 points. Planned comparisons (Dunn, 1961) indicated that the interaction and the aforementioned increase were significant beyond the .05 level. Hence, this study showed both relative and absolute sleeper effects for the forewarned groups.

In regard to the effects of distraction, the data for the no-forewarning conditions, which would be most similar to the typical distraction study, showed the predicted interaction. Distraction facilitated opinion change immediately after reading the communications ($M = 75.38$ for the distracted individuals, compared to 70.77 for those persons in the no-distraction conditions), but after a week, this pattern had reversed, with the nondistracted subjects showing somewhat superior retention of opinion change. This interaction was also significant beyond the .05 level as tested by Dunn's (1961) method.

In summary, there appears to be considerable support for the conjecture that moderate distraction may have a facilitating, but short-lived, effect on opinion change. There was no evidence in the present study that forewarning increased the favorability of sub-

jects' responses to the familiar control issues. In contrast, when only familiar issues were presented, subjects who were forewarned agreed somewhat less strongly with the opinion statements on both the immediate and delayed measurements. There seems to be no ready explanation for the different results obtained with the control issues in the two experiments.

Comprehension

The prediction that forewarning would serve as a discounting cue and lead to a sleeper effect was based on the assumption that it would not interfere with learning of the message content. In contrast, the predictions involving distraction were based in part on the assumption that distraction would interfere with learning and that, consequently, induced change would be quite ephemeral. The mean comprehension scores for each of the experimental conditions are presented in Table 3.

Analysis of variance indicated that the main effect of distraction was significant, $F(1, 102) = 28.33$, $p < .01$, and in the predicted direction. The main effect of forewarning was in the same direction as that obtained in the first study, $F(1, 102) = 2.57$, $p \approx .11$. In contrast to the earlier study, time of measurement had a significant effect, $F(1, 102) = 52.36$, $p < .01$, with subjects remembering less of the messages' contents at the time of delayed measurement. The only other signifi-

cant effect was the interaction between forewarning and distraction, $F(1, 102) = 4.11$, $p < .05$. There was a greater facilitating effect of forewarning on learning when subjects were not distracted. Hence, in the present study, subjects learned significantly less under conditions of distraction even though their opinions were changed much more. These results are quite similar to those obtained by Insko, Turnbull, and Yandell (1974) and Petty et al. (1976), in whose studies, at least under some conditions, distraction interfered with recall but facilitated opinion change. Together, these studies suggest some limitations of the generalization advanced by previous researchers (e.g., Festinger & Maccoby, 1964; Osterhouse & Brock, 1970; Regan & Cheng, 1973) that distraction facilitates opinion change only in cases where it does not interfere with reception of the message. Naturally, if the interference with comprehension were severe, the distraction would inhibit opinion change, since one can only change his or her opinion in the direction advocated if he or she knows what that position is.

General Discussion

Effects of Forewarning

Both studies indicated that forewarning of of persuasive intent of a communication produced a sleeper effect whereby subjects were more influenced by the message after a week's interval than they were immediately after reading it. There were at least three reasons for expecting such a delayed-action effect. The first pertained to the number of counterarguments evoked by forewarning. It was assumed that if forewarning increased counterarguing, less immediate opinion change would result, but that over time, the subjects' reactions would be forgotten or dissociated from the messages, thus allowing the information to have a greater impact. In the first study, forewarned subjects showed a slightly greater tendency toward counterarguing; but the effect fell short of significance. This may have been due, in part, to the insensitivity of the response rating scale employed.

Table 3
Mean Comprehension Scores for Each of the
Experimental Conditions

Condition	Not forewarned		Forewarned	
	Measurement		Measurement	
	Imme- diate	De- layed	Imme- diate	De- layed
No distraction	1.92	1.38	2.19	1.83
Distraction	1.58	1.23	1.65	1.25

Note. These means are based on the number of correct answers to three multiple-choice questions. Cell *ns* = 52.

The second reason for expecting a delayed-action effect rested on the assumption that forewarning would increase the subjects' tendencies to derogate the communications. As found in earlier studies (e.g., Dean et al., 1971; Hass & Grady, 1975), subjects rated the messages as less fair and unbiased when forewarned of their persuasive intent. Thus, forewarning apparently served as a discounting cue (much like a negative source), thereby reducing the immediate impact of the communication. However, with the passage of time, subjects tended to forget or dissociate the discounting cue, thus allowing the full impact of the persuasive material to emerge, providing that forewarning did not interfere with comprehension. Consequently, the forewarned subjects would be expected to reach the same level as the nonforewarned group over time. Obviously, whether an absolute increase occurred, as witnessed in the second study, would depend on such factors as the period of time elapsed and the decay rate for the nonforewarned group. This reasoning parallels the original interpretation of the sleeper effect (Hovland et al., 1949), in which it was presumed that the propaganda-type context led to an initial dampening of the film's persuasive impact, but that as this discounting cue was forgotten over time, the subjects accepted the message to a greater extent. Despite the fact that Gillig and Greenwald (1974) have written its obituary, and Capon and Hulbert (1973) have concluded that there is no strong evidence for a generalized sleeper effect, the data in these studies fully supported an opposing stance. Indeed, Gruder et al. (1978) have recently shown that absolute sleeper effects can be obtained when certain conditions are met for strong tests: (a) when a persuasive message has a substantial initial impact on attitudes, (b) when this change is totally inhibited by a discounting cue, (c) when the cue and message are dissociated over time, and (d) when this dissociation occurs quickly enough so that the message still has some impact. The present studies generally would appear to meet these criteria.

As previously mentioned, forewarning may be a better method of studying the sleeper

effect than attributing a negative source to a compelling message, since this must often arouse feelings of incredulity, and furthermore, the negative source may be overshadowed by the mention of a number of positive sources in the communication itself. For example, a health message may be attributed to a low-prestige source, such as a high school student, but within the text, various facts may be presented that presumably come from medical journals, learned professors, or prominent physicians. The result could conceivably end in confusion.

The third possibility, that forewarning increases reactance, was not tested in these studies; but again, this view would lead to the predicted delayed-action effect. As Hass and Grady (1975) pointed out, despite the presence of reactance, well-written communications containing compelling arguments often lead to persuasion. The arguments should have greater influence on the subject once the reactance has dissipated.

Actually, all three of the interpretations mentioned above can be viewed as variations of the discounting cue hypothesis, with counterarguments, derogation of source and message, and feelings of reactance each serving as an initial rejection cue.

Effects of Distraction

More rapid decay of opinion change, induced under conditions of distraction, was expected for two reasons. First, distraction has been shown to interfere with comprehension of message content (e.g., Petty et al., 1976; Zimbardo et al., 1970). While correlational studies of memory and persistence have produced somewhat inconsistent results (e.g., Cook & Flay, 1978; Miller & Campbell, 1959; Watts & McGuire, 1964), Cook and Flay point out that experimental manipulations affecting learning have usually influenced persistence of opinion change. Thus, while the immediate effects of distraction may be to increase opinion change (presumably because more is gained from the reduction in counter-arguing than is lost through poor comprehension), the long-term prognosis would be a rapid reversion to the level of the nondis-

tracted subjects, if not to a lower level. The data in the present study are consistent with this view, inasmuch as distracted subjects changed more immediately afterward, but not during the delayed measures of opinions; and they scored significantly lower on the comprehension test at both time intervals.

The second reason for expecting the obtained temporal effects depends on postexperimental counterarguing. Although this variable was not assessed in the present study, the fact that distraction completely nullified the immediate effects of forewarning strongly suggests that counterarguing is a major mediating process. After the subject has left the experimental room, it is only reasonable to assume that he or she would be able to think of a greater number of counterarguments to the communications when free to reflect on them without being distracted. This phenomenon should, in turn, serve to move the person's opinion back toward the preexperimental level. It is regrettable that both immediate and delayed counterarguing were not measured in the second study. The rating scale that was used in the first study seemed inadequate, and the more thorough thought-listing procedure (e.g., Brock, 1967) would have been too complicated for our within-subjects design.

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