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THE EFFECTS OF MULTIPLE EXPOSURE, SOURCE CREDIBILITY AND INITIAL OPINION ON COMMUNICATION EFFECTIVENESS

by

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A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

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Abstract

THE EFFECTS OF MULTIPLE EXPOSURE, SOURCE CREDIBILITY AND INITIAL OPINION ON COMMUNICATION EFFECTIVENESS

by

Henry Solomon

Adviser: Professor Walter Weiss

The problem of concern in the present study was the effect of repeated exposure to a persuasive communication on attitude change and learning. Four independent variables were manipulated in a 3 x 3 x 2 x 2 factorial design: exposures (one, two, three); source credibility (high, low, anonymous); initial opinion (extremely vs. moderately opposed to the communicator's position); post communication attitude testing (immediately after plus delayed vs. delayed testing only). Thus there were 36 experimental groups plus 4 no-communication control groups.

It was expected that, as compared to single exposure to the communication, multiple exposures would:increase learning and increase attitude change in favor of the communicator's position; reduce any initial source credibility effects; and reduce credibility differences over time (i.e. sleeper effects). Differential effects of source credibility were expected to be greater among extremely opposed than among moderately opposed Ss. It was also expected that sleeper effect patterns (where obtained) would differ as a result of the number of post communication attitude tests.

Finally, it was expected that a relationship between post communication attitude and learning would be demonstrated in the"attitudinally relevant" (but not attitudinally neutral or "fact") material in the communication.

Subjects participated in a"learning experiment" with one, two, or three "trials (readings of the communication). The communication was attributed to either a high, or low credible source ot to no source. Trials were spaced by interspersed "music selection learning trials." All conditions were run at the same time and randomized across classroom groups. Neutral cartoon material was substituted during the "no-communication trials for the one and two exposure groups and the control groups. An attempt to reduct the "demand characteristics" of the usual attitude change experiment was made by emphasizing learning, disclaiming interest in the topic of the communication, and the use of a disguised delayed measure of attitude. The delayed attitude measure was administered 4 - 6 weeks later by a different experimenter in the form of a survey conducted for a different department.

As compared to single exposure, multiple exposures significantly increased the recall of communication content, but there was no main effect of exposures on attitude. However, there was a significant reduction of source credibility effects on attitude in the multiple exposure conditions. It was suggested that, due to the low level of content learning in most single exposure studies, accept-reject decisions by S may be based on source credibility rather than content. The failure to obtain a sleeper effect was discussed in terms of the necessity for "discounting" of the low credible source's message initially (which did not occur in the present study).

The most striking outcome, and one that has rarely been demonstrated in attitude change studies, was the significant relationship between post communication attitude scores and the recall of attitudinally relevant (but not attitudinally neutral) content. In addition, there was an interaction between initial opinion and source credibility in both the attitude scores and the recall scores for the attitudinally relevant items such that, among the extremely opposed Ss there was a source effect on both measures (i.e. more learning and more attitude change in the high than in the low credible source conditions). Among the moderately opposed Ss there was significantly greater recall of attitudinally relevant content in the anonymous than in the named source (High and Low) conditions, with a similar (but not significant) source pattern in the attitude scores.

Finally, the efficacy of a qualitative distinction between attitudinally relevant and attitudinally neutral communication content in studying the relationship between learning and attitude was discussed.

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The problem of concern in the present study was the effect on attitude change of repeated exposures to persuasive communications. Despite frequent comments about the presumed effects on opinion of more than one exposure to a communication, there is surprisingly little systematic research that can be cited in support of such conjectures. Although there have been a number of studies on the effectiveness of repetition of nonsense syllables and other single stimuli (e.g. see Zajonc, 1968, for a review of these studies), research employing multiple exposures to standard persuasive communications has been sparse (e.g. Peterson & Thurstone, 1933; Annis & Meier, 1934), and the results have been inconsistent. However, the notion that repetition affects attitude change is implicit in the campaign tactics used by product and political advertisers. Although most commercial agencies have been loathe to release their findings, the fact that repetition is used lends some weight to this notion. The few reports that have been released (e.g. Grass, 1968; Stewart, 1964; Lerner et. al., 1967) also suggest the importance of the repetition variable in communication effectiveness.

The pervasiveness of repetition in the field makes the effect of repetition an important variable for research. In the natural communications situation, the individual is often exposed to a number of communications which attempt to "sell" the same product or candidate. It is quite likely that he will be exposed to any communication a number of times, although he may not give equal attention to it on all or any of these occasions (Grass, 1968). Also, in the field situation, persuasive messages may be repeated with variations. These variations could include differences in content (e.g. one-sided vs two-sided arguments; different numbers of supporting arguments etc.), style (e.g. serious vs comic) or mode (e.g. auditory, visual, written,

face-to-face) and could combine different sources with any of the foregoing (e.g. official political party communications vs communications by "interested private citizens groups" etc.). A particular campaign may use any of the above in combination and a recipient may be exposed to all or part of such a campaign. He may also be exposed to any particular aspect a number of times, and may or may not attend to all of these.

Apart from its importance in the field, the theoretical relevance of the effect of repetition of persuasive communications is three-fold. First, most theories of attitude state, or imply that multiple reinforcement (R. F. Weiss, 1963), or multiple exposure to models or communications about social behavior (Allport, 1935; Smith, 1968) leads to the formation and maintenance of attitudes in real life (e.g. Newcomb, 1961). McGuire's work on innoculation theory (1961) also points to the importance of the repetition variable in this respect. The implication is drawn that cultural truisms are strongly held because of frequent repetition of communications which support them, and the absence of counter-communications. In addition, Hovland (1959) has pointed out that one reason for the failure of field studies to replicate established effects of persuasive communications may be the presence in the field of numerous other communications, both pro and con. (See also McGuire, 1969.)

Second, it has been suggested that our knowledge of what is happening in the communication situation is still limited (Insko, 1967). Multiple exposure studies might help to expand this knowledge. For instance, interpretations of attitude change effects in single-exposure studies are often drawn in terms of such matters as learning, retention, and acceptance of content (Hovland, Janis & Kelley, 1953; Watts & McGuire, 1964) or the complexity of communications (Brock & Becker, 1965). Since repetition might make complex communications easier to understand, or allow for more learning

of the content, one might expect that repetition would modify some of the present generalizations concerning communications and their effects. Furthermore, where consistent effects have been obtained with single-exposure studies (e.g. source credibility, see Insko, 1967), these effects have not endured over time (Hovland & Weiss, 1951; Kelman & Hovland, 1953). The question remains as to whether such temporary effects would be the case with multiple exposures to the communication.

Third, it has been shown that, even in the absence of opinion change, exposure to persuasive communications does create "uncertainty" about one's own position (e.g. Weiss, 1968; Weiss & Solomon, 1967). This suggests potentially increased receptivity to subsequent exposures.

Studies that have manipulated multiple exposures to communications have not demonstrated consistent effects. Some have shown increased recall with repetition (e.g. Wilson & Miller, 1968; Lerner et. al., 1967); some have shown increased opinion change with repetition (e.g. Annis & Meier, 1934; Peterson & Thurstone, 1933; Gardner, 1935; Torrance & Mason, 1956; Wilson & Miller, 1968); while others have shown merely a maintenance of initial opinion change over time (Cromwell & Kunkel, 1952; Bonato, 1961). A few studies have not been able to demonstrate any increase of effect on opinion change with repetition (Deitsch & Gurnee, 1948; Weiss & Solomon, 1967; Horowitz, 1969).

A number of factors make it difficult to reconcile the conflicting results in the previous research. For instance, a number of the studies confounded repetition with other factors. For example, Annis and Meier (1934) used all of, or half of, a set of different planted editorials which may have, in effect, been a confounding of content and exposure. Also, Wilson and Miller (1968) actually manipulated the repetition of one-sided versus two-sided

messages rather than repetition per se. A second crucial problem in some of the studies was that they failed to ensure attention to the repeated exposures (e.g. Deitsch & Gurnee, 1948). Thus, repetition of exposure may not have increased actual exposure for some of the Ss. A related problem in the previous studies is that few of them attempted to control for learning of the communication. Finally, the studies employed such diverse procedures that it is difficult to pinpoint the cause of the lack of replication. For example, several of the studies used what appear to be very involving issues (e.g. tuition for the City University, Weiss & Solomon, 1967), while others used issues that might have been of little importance to the Ss (e.g. jury trial arguments, Wilson & Miller, 1968). Some of the studies tested post-communication attitude directly after the communication (e.g. Weiss & Solomon, 1967), while others tested attitude at a delayed time only (e.g. Cromwell & Kunkel, 1952). In some cases, both sides of the issue were presented (e.g. Wilson & Miller, 1968). In one case, content, but not source, was repeated (Johnson & Watkins, 1967). While differences in procedure are generally considered beneficial to the delineation of a field of knowledge, when the results are also different, it is difficult to draw any comprehensive conclusions. However, given the importance of the repetition variable noted earlier, it is suggested here that systematic research is needed. Certainly, at the very least, exposure should be strictly controlled, so that two exposures are really two exposures for all Ss, and not three for some, one for others. In addition, the exact portion or aspect being repeated should be held constant. These crucial precautions were taken in the present study, which represented a controlled laboratory investigation of the effect on opinion of repeated exposures. It was expected that careful control would result in an effect of repetition of

exposure on attitude change. The present study also investigated the relationship of repeated exposures to source credibility and initial opinion of the recipient, and tested the interactive effect of these variables on attitude over time, as a function of immediate-after vs. delayed testing. The theoretical relevance of these variables is discussed below.

Source Credibility

Communications research has repeatedly demonstrated the influence of source on opinion change. Early work emphasized the effects of majority opinion (Moore, 1921) and the prestige (Farnsworth & Misumi, 1931; Lorge, 1963; Kulp, 1934) or the attractiveness of the communicator (Saadi & Farnsworth, 1934). Owing to a lack of statistical sophistication, these early studies did little more than point the way to more careful work on the topic. The work of the Yale communications program under the direction of Carl Hovland (Hovland, Janis & Kelley, 1953; Hovland et. al., 1957) was the major impetus to later work. Many of the above mentioned variables, and their effects on opinion change were examined (e.g. power, attractiveness, credibility: cf McGuire, 1969). For purposes of this paper, the discussion will be confined to the work on source credibility. McGuire (1969) and Insko (1967), in their surveys of the field, have remarked on the highly consistent results reported in the source credibility literature. With few exceptions (e.g. Hovland & Mandell, 1952), high credible sources have tended to be more influential than low credible sources (e.g. Hovland & Weiss, 1951; Kelman & Hovland, 1953; Watts & McGuire, 1964). It should be noted here that credibility, as applied to source, has been defined (Hovland, Janis & Kelley, 1953) as having two dimensions: 1) the degree to which a communicator is perceived as a source of valid assertions (expertness) and, 2) the degree of confidence in the communicator's intent to communicate assertions he considers most valid (trustworthiness). This definition has

been supported by recent factor analytic studies (e.g. Giffin, 1967; Bowers & Phillips, 1967).

The classic source credibility study is one by Hovland and Weiss (1951). Ss were asked to read communications on four different topics. Each communication was attributed to a source of either high or low credibility, and a pro or a con viewpoint was expressed. The combinations of credibility, topic, and side of the issue were counterbalanced so that all combinations of source and topic were represented (e.g. feasibility of atomic submarines, Robert Oppenheimer vs. Pravda). Opinion on the topics was assessed immediately after the reading of the four communications. When compared with a pre-measure administered five days earlier, the results showed a significantly greater amount of opinion change for the high credible than for the low credible source group. Although there was no evidence that there was any difference between the source groups in the amount of learning, the authors hypothesized a difference in acceptance of the material based upon the source. Ss were seen as "discounting" the information received from the less credible source. ("I know what he is saying, but I don't believe it." Hovland & Weiss, 1951, p. 647).

The Hovland and Weiss (1951) study (as well as a majority of source credibility studies) attributed each communication, with relatively sound arguments, to a source of either high or low credibility. It might be suggested that "discounting" in the low source condition is due, in part, to a relatively low level of learning of the content after a single exposure to the communication. That is, the responses to the communicator's conclusions may be based largely upon source attribution (i.e. High credible - accept; Low credible - reject), rather than upon appraisal of the

communication. However, if there were an opportunity for better learning of the communication content (i.e. the arguments supporting the communicator's conclusions), it could be less likely that "discounting" of the low source's conclusions would occur. (It might also be that, given better learning of the arguments, there would be some reduction of the effect usually found in the high credible source condition. That is, arguments, upon more careful examination might not appear to be as cogent as was expected from this "high credible source.")

Thus, in the present experiment, it was expected that the effect of repeated exposure to a persuasive communication would be to reduce the differential effects of source credibility on attitude change.

Sleeper Effects

An interesting aspect of the source credibility research is the finding of differential decay of the source effect over time. That is, when opinion change is measured several weeks after exposure to the communication, the differential effect of source disappears. This was first demonstrated by Hovland, Lumsdaine and Sheffield (1949) in a study of GIs' estimates of the duration of World War II. When subjects were separated into those who had perceived a film communication as "information" and those who had perceived it as having a "propagandistic intent", the informational (high credible) group was found to be more influenced than the propaganda (low credible) group. However, when the opinions of the Ss were assessed nine weeks after the film, there was no longer a significant difference between the groups. This was due to a decrease of opinion change in the high credible source group and an increase of opinion change on certain items in the propaganda group. The film appeared to have had a delayed effect on the opinions of the latter group.

This effect, dubbed the "sleeper effect," was more carefully tested

in the Hovland and Weiss (1951) study, mentioned above. Four weeks after the exposure to the communications, opinions were reassessed, and showed a rise in effectiveness of the low credible communicators and a drop-off in effectiveness of the high credible communicators such that there was now no difference in opinion change between the groups. Hovland and Weiss postulated a "discounting cue" notion to account for the results. They suggested that, initially, the Ss exposed to the low credible source "discounted" the information from that source, and thus were less influenced than Ss exposed to the high credible source. Later, they conjectured, the discounting cue (low source) was forgotten faster than the message, allowing the retained information to have its full impact on Ss' opinions. However, failing to find evidence for differential forgetting of source, the authors suggested that the net increase in favorability toward the communicator's position was due to a failure to spontaneously associate the discounting cue and the message.

In order to test the notion of "spontaneous dissociation" of source and content, Kelman and Hovland (1953) "reinstated" the source at the time of delayed opinion testing for half of their Ss. These Ss listened again to the source introduction that they had heard during the communication session. The reinstated group maintained the differential effect of source that was obtained at the immediate post-communication opinion test. The "non-reinstated" group showed the usual convergence or "sleeper effect," although the sleeper effect was not quite significant. (This non-significant effect may have been due to the 3-week delay period used by Kelman and Hovland. Their strong introduction of the low credible source may have required a delay period longer than three weeks in order to spontaneously "dissociate".) Recent work by Schulman and Worrall (1970), using spontaneous

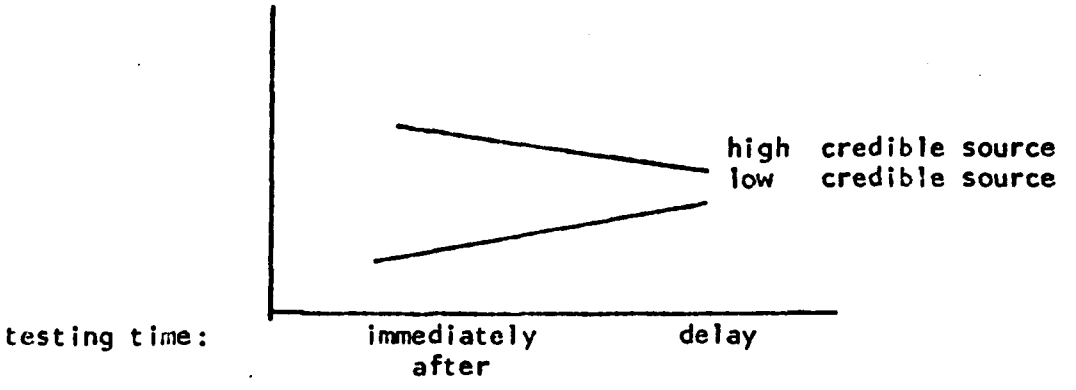
association as one dependent measure, has also indicated that sleeper effects may be mediated by the spontaneous dissociation factor.

The interpretations of sleeper effect cited above imply a potential effect of repetition. Repetition of source and communication should decrease the probability of differential forgetting of a discounting cue, and increase the probability of spontaneous association of source and content. To the extent that sleeper effects are the result of such "forgetting," it was expected that, in the present study, multiple exposures to the source and content would decrease the probability that any sleeper effects would occur.

Sleeper Effect Patterns

Two patterns of sleeper effect have been shown in the literature: one with an increase in opinion change in the low credible source group was discussed above (Fig. 1a) and a somewhat different effect to be discussed below. This second effect was obtained by Weiss (1953), in an examination of the discounting cue interpretation of the sleeper effect. Weiss postulated that if the low credible source initially serves as a discounting cue for the subject, leading him not to accept the communication, then any other discounting cue, experimentally introduced, should have the same effect. In his study, Ss learned statements with true-false labels, on the effects of smoking. After the "learning experiment," one-half of the Ss were given a counter-communication which cast doubt on the truth of the statement-label combinations they had just learned. This counter-communication served as the "discounting cue." Opinion change was assessed for a different subset of each group at varying time intervals after the learning session: immediately after, or 3 weeks after, or 6 weeks after. Thus, no subject was tested more than once. In the 6-week delay subsets (as compared with the immediately-after subsets), there was a greater loss of opinion

a: Same Ss tested immediately-after + delay



b: different Ss tested immediate-after vs delay only

Figure 1

Two patterns of "sleeper effect"

change for the non-discounted group than for the group that received the discounting cue. Thus there was a delayed effect (sleeper effect) of the communication on the discounted group. This delayed effect counteracted the usual loss in opinion change over time to produce a partial maintenance of opinion change, as compared with the loss of opinion change in the non-discounted group (Fig. 1b). That is, the "sleeper effect" in this study did not produce an increase in opinion change but did produce a slower rate of loss over time for the discounted group.

A similar pattern was obtained in a study by Watts and McGuire (1964). Comparing high and low credible sources, there was a greater loss of initial opinion change for the high credible source group than for the low credible source group after a 6-week delay period. Schulman and Worrall (1970) demonstrated a similar pattern, among the Ss in their study who failed to "spontaneously associate" source and content.

A major difference in procedure can be seen between the experiments obtaining the two patterns of sleeper effect. In the studies by Weiss (1953), Watts and McGuire (1964), and Schulman and Worrall (1970), Ss were tested only once. Different segments of the source groups were tested either immediately-after or at a later session, and a "differential loss over time" was obtained. In contrast, the studies that obtained a "rising sleeper effect" or increase in opinion over time for the low source group (e.g. Hovland & Weiss, 1951; Cohen, 1957; Kelman & Hovland, 1953) used an immediate-after plus delayed testing paradigm. Thus, when Ss were tested twice, the "rising" sleeper effect seemed to obtain; when Ss were tested only once, the differential loss over time pattern was obtained.

These two patterns of sleeper effects might be accounted for as follows. It has been argued previously that, at delayed testing, there is little, if

any "spontaneous association" between source and content (Kelman & Hovland, 1953; Schulman & Worrall, 1970). The response to the attitude measure then, is mainly in terms of the "residual" communication content. It has also been demonstrated that there is no source difference in the amount of recall of content at either immediate or delayed posttesting. If, at delayed testing, Ss in both high credible and low credible source conditions are responding to the same information (i.e. content in the "absence" of source), then it is reasonable to expect the attitude scores of the two source groups to converge (as has been shown in the data patterns of sleeper effect studies).

At immediate-posttesting, however, the response to the attitude measure is in terms of source and content (i.e. the effect of the communication combined with either the "enhancement" effect of the high credible source or the "discounting" effect of the low credible source). An attitude measure taken at this time (e.g. 2-posttest design) may constitute an extra "rehearsal" of the content and its effect on Ss' attitude. When Ss are tested at the delayed time only (i.e. 1-posttest design), this "advantage" is missing. Therefore it is reasonable to expect that at delayed testing, the residual effect of content and own attitude will be greater in the 2-posttest design than in the 1-posttest design. In the 2-posttest design, at immediate-posttesting, the full effect of the communication is reduced by "discounting" in the low credible source condition. At delayed testing, due to a "failure to spontaneously associate" source and content, the effect on attitude is mainly the effect of the communication content, or at least the "residual" of the content plus S's recall of his own attitude. It is likely that this residual effect is somewhat above the initial "discounting" point for the low credible source group. This yields a rising sleeper effect pattern (Fig. 1a). In the 1-posttest design, on the

other hand, since these Ss do not have the "advantage" of the "extra rehearsal," the residual effect is less than in the 2-posttest design, leading to a common point that is either at, or below the initial "discounting" point for the low credible source condition. This yields a "maintaining sleeper effect" pattern for the low credible source condition and a sharper drop off for the high credible source condition (Fig. 1b).

By manipulating number of post-communication tests, the present study tested the notion that the difference in "sleeper" patterns was a procedural artifact associated with posttesting. Also, the use of these two conditions served to control for the problem of "consistency effects" with multiple testing (e.g. Hovland, Lumsdaine & Sheffield, 1949, p. 310). The single and double testing methods have never been utilized in the same study before, and no direct comparison of their effects has been made.

Demand Characteristics

The possibility of a "demand characteristics" (Orne, 1962) interpretation of some of the attitude change study results needs to be considered at this point. In the recent literature, there has been some concern with this question, particularly as it pertains to attitude change experiments (e.g. McGuire, 1969; Silverman & Shulman, 1970; Love & Greenwald, 1970). To the extent that Ss may be "eager to help the E" and confirm his hypothesis (as they perceive it), the cue that opinion change (e.g. high credible source attribution) or resistance to opinion change (e.g. low credible source attribution) is the desired outcome, may serve to inflate any effects obtained. In addition, delayed testing may be subject to the effects of Ss' interpretation of the attitude retest as a measure of their "consistency."

Therefore, although no attempt was made here to test the differential

effects of demand characteristics, the methodology of the experiment was designed to reduce them as much as possible. The experiment was presented as a study of "learning," and the procedure stressed a "learning situation" with quizzes and a number of "trials." McGuire (1969) has noted that the E is often identified with the position of the communicator in attitude change experiments. Therefore, the E in the first session made it clear that he was not interested in the topics per se. He indicated that, in order to motivate learning, several topics were being used, and that the criterion for their selection was their interestingness. In addition, the delayed testing session ostensibly was a different investigation with a different purpose, to remove it as far as possible from any connection with the first session.

Learning

The use of a learning guise in the present study allowed a test of the relationship between attitude and learning. The classic study by Levine and Murphy (1943) found that Ss were better able to recall arguments that were consistent with their attitudes than arguments that were inconsistent.[1] It has been suggested, however, that once learning of such attitudinally inconsistent material is accomplished, it should be accompanied by opinion change. Hovland, Janis and Kelley (1953) have stated this as follows:

> "We assume that opinions, like other habits, will tend to persist unless the individual undergoes some new learning experiences. Exposure to a persuasive communication which successfully induces the individual to accept a new opinion constitutes a learning experience in which a new verbal habit is acquired (Hovland, Janis & Kelley, 1953, p. 10)."

There is evidence, however, that differential opinion change can occur in the absence of differential learning. For instance, despite differences in opinion change, none of the studies of source credibility cited above

obtained any differences in learning between the High and Low credible source groups. However, where anonymous source conditions were used, there is evidence that these groups had higher retention scores than either of the named source groups (e.g. Kelman & Hovland, 1953).

> "This outcome is in accord with Bauer's (1965) contention that so long as the person knows whether the source is high or low in credibility, he can evaluate the conclusion without paying attention to the arguments used. It is only when he is unable to evaluate the source that he must analyse the arguments themselves..(McGuire, 1969, p. 182)."

The implication of McGuire's notion is that, instead of referring to the arguments used to support the communicator's conclusion, the S can justify his acceptance or rejection of the conclusions by referring to the source (i.e. "...because the professor said so," or, "what does a gypsy know about science..?"). The clearly valenced source can serve as a mediating cue for acceptance or rejection of the conclusions. However, when the source is not clearly valenced (i.e. anonymous, or "neutral"), the S must search the communication itself for the cue for his acceptance-rejection decision. This active participation, as it were, in the anonymous source condition, leads to better recall of the communication content than in the named source conditions.

The notion that the S in the anonymous source condition must search the communication for the cue to accept-reject, suggests that there is a particular aspect of the material that is being learned. It is likely that in looking for the "cue," S concentrates on the arguments used to support the conclusions that the unnamed source is presenting. If the content of a persuasive communication can be considered to contain attitudinally neutral as well as attitudinally relevant material (e.g. "Houdini offered a $21,000 reward," vs "ESP predictions are all cleverly worded to predict all possible outcomes."), then it might be expected that the differential

learning due to source would occur with attitudinally relevant material (but not with attitudinally neutral material).

In the pretest experiment, the fact quiz used to support the learning guise was pretested to ascertain attitudinally relevant and attitudinally neutral items. (See the pretest results section.) It was expected that, aside from any effects of repetition which might occur, there would be differences in learning of the attitudinally relevant items among the various source subgroups.

Initial Opinion

Since it has been shown that the initial opinion of Ss is related to opinion change (e.g. Weiss & Solomon, 1967), it was considered important to ascertain the relationship of initial opinion to the other variables in the present study. Hovland, Harvey and Sherif (1957) have hypothesized that attitudes on a topic range along a continuum from extremely favorable to extremely unfavorable and that, within this range, for each person, there are two regions known as the latitude of acceptance and the latitude of rejection. The boundaries of these latitudes are determined by Ss' initial opinion which serves as an anchor. In general, communications which are only moderately discrepant from this initial position fall into the latitude of acceptance. Communications which are extremely discrepant from Ss' initial position fall into the latitude of rejection. Freedman (1964) has suggested that there is an increasing positive effect of discrepancy on opinion change with communications that fall into the latitude of acceptance and an inverse relationship between discrepancy and opinion change with communications that fall into the latitude of rejection. In other words, as discrepancy increases toward a moderate level, there is a direct relationship between discrepancy and opinion change. However, once the

discrepancy becomes more extreme, there is an inverse relationship between discrepancy and opinion change. Therefore, the greatest effect of discrepancy on opinion change should occur at moderate levels of discrepancy.

Aronson, Turner and Carlsmith (1963) have extended the notion of a curvilinear relationship between source-receiver discrepancy and attitude change to include source credibility. They have suggested that, as discrepancy increases beyond a moderate level, the curve for the low credible source condition begins to turn down sooner than the curve for the high credible source condition, leading to a greater difference in attitude change between source groups at more extreme levels of discrepancy. Using a dissonance theory formulation, Aronson et. al. (1963) have pointed out that discrepancy between the communicator and receiver is dissonant. In the usual attitude change experiment, the only means of dissonance reduction available to the S are source derogation and attitude change. With sources high in credibility, attitude change is the more likely method since such sources are difficult to derogate. With sources low in credibility, however, derogation becomes the easier and preferred method, as discrepancies become more extreme. Therefore the attitude change curve for the low source condition turns down as discrepancy increases beyond a moderate level, while the curve for the high credible source condition is still rising. The outcome, in terms of source credibility can be described as follows: at moderate levels of discrepancy the effect in the high credible source condition is mainly attitude change, while the effect in the low credible source condition is a combination of attitude change and derogation leading to less attitude change for the low than for the high credible source group. At extreme levels of discrepancy, the effect in the high credible source condition is still mainly attitude change. In the low credible source condition,

however, the effect becomes more derogation than attitude change. The net result is a greater difference in attitude change between high and low credible source conditions at extreme levels of discrepancy than at moderate levels of discrepancy.

In the present study, it was expected that there would be a greater differential source effect on Ss whose position on the issue was extremely discrepant from the communicator's point of view than on Ss whose position was only moderately discrepant from the communicator's point of view.

To summarize the presentation thus far, the present study was an investigation of the effects of repeated exposure to a persuasive communication as well as the interactive effects of source credibility and initial opinion on post-communication attitude. In addition, the effect of the foregoing variables over time was tested in a 2-posttest (immediate-after and delayed) vs. 1-posttest (delayed testing only) design. The main hypotheses are outlined below.

Hypotheses

1. If repeated exposure to a communication increases the recall of communication content, then multiple exposures to a communication should have a greater effect on opinion than single exposure.

2a. If the often found differential effects of source credibility on opinion are due to poor learning and/or retention of the communication content, then multiple exposures should lead to smaller source differences on post communication opinion than those found with single exposure.

b. Alternatively, if the strongest effect of the communication situation is due to source valence (such that source attribution enhances or inhibits any effect of the communication) then multiple exposures to a communication should lead to a maintenance or increase in any source effects obtained after single exposure.

3. If the delayed effect of the low credible source on opinion is due to a more rapid forgetting (or dissociation) of the initial "discounting cue" leading to a "sleeper effect" (maintenance or increase in opinion over time as compared to the high credible source group), then multiple exposures to source and communication should reduce this effect, as compared to a single exposure to source and communication (i.e. greater maintenance of any initial source effects over time in multiple as compared to single exposure conditions).

4. If, as communicator-receiver discrepancy levels increase, the attitude change curve for the low credible source condition turns down sooner than the attitude change curve for the high credible source condition, then a greater differential effect of source credibility (high more favorable to the communicator's position than low) on posttest attitude should occur among Ss who are extremely opposed to the communicator's position than among Ss who are moderately opposed.

5. If the two patterns of "sleeper effects" found in the literature are due simply to differences in testing procedures (one vs two posttests), then variation of testing procedures in a single experiment is expected to produce the following:

a. With two tests, an increase in opinion over time for the low credible source groups and a decrease for high credible source groups;

b. With delayed testing only, a smaller decrease over time for a low credible source group than for a high credible source group.

Method

Overview of the Design

Experimental groups. Ss participated in a "learning experiment" which had to do with the "learning effectiveness of various media, written, visual, and auditory." They participated in three "learning trials" on various materials during one class session. Thus, repeated exposure to the persuasive communication was logical and natural.

Ss responded to a pre-exposure measure of attitude on the topic (validity of ESP) and rated the personal importance of the topic. Then, Ss received 1, 2 or 3 exposures to the persuasive communication (i.e. "learning trials"). Ss in the 1 or 2 exposure conditions looked at filler material during those "trials" when they were not exposed to the communication. The communications were attributed to either a high or a low credible source, or to no source (anonymous source). Following the last trial, all Ss responded to a 10-question quiz on the communication content.

Then, one-half of all Ss responded to an attitude measure immediately after exposure to the communication as well as 4-6 weeks later, while the remaining half of the Ss responded to the attitude measure only after the 4-6 week delay period.

With the addition of initial opinion, the basic design comprised a 3 x 3 x 2 x 2 factorial arrangement of the following factors: source (high credible vs low credible vs anonymous); exposures to the communication (1 vs 2 vs 3); time of post-exposure attitude measures (delayed only vs immediate + delayed); and initial position on the pre-measure (extremely strong vs moderately strong belief in the validity of ESP). Since pretesting had revealed that Ss tended to rate themselves on the

"believe" side of the scale, the communication advocated a "con" or disbelieve position. Thus, Ss might be regarded as Extremely opposed or Moderately opposed to the position of the communication.

For convenience of reference, the factors and their levels will be designated respectively as S (Hi vs Lo vs Anon); E (1 vs 2 vs 3); T (1PT vs 2PT); and I (Ext vs Mod).

Control groups. Two no-communication control groups were also formed. In the first session, both groups responded to the premeasure and to the critical 10-question multiple choice quiz. The 2PT control group then responded to the attitude measure at this time, and also at the delayed session; whereas, the 1PT control group responded to the attitude measure only at the delayed session.

Subjects. Ss were students enrolled in introductory psychology courses at Hunter College and Lehman College, City University of New York. The study was administered during a regularly scheduled classroom period. The "learning session" took one entire class period (40 minutes). Ss were randomly assigned to the different conditions within each classroom group by individually handing out booklet sets which were in a pre-arranged randomized order. The order was such that one complete replication of the 20 manipulated conditions (3S x 3E x 2T experiment + 2 control conditions) was distributed before the next replication was begun. In this way, any subject or experimenter factors that may have differed between classrooms or between colleges were randomly distributed over the manipulated conditions.

Experimenters. Separation of the delayed attitude measure from the initial "learning study" was accomplished by having a different experimenter

present a "survey for the debating club." Thus the probability of any reinstatement effects of the original learning experiment was reduced as much as possible and a "demand characteristics" interpretation of the delayed effects was minimized. The topics in the "debating club survey" included the delayed attitude measure in slightly disguised form. (See Appendix A). A male experimenter conducted the "learning" study; a female experimenter administered the "debating club survey."

Overview of the procedure

Learning trials. All Ss participated in three "learning trials" during one class session, separated by two 2-minute interpolated tasks. (The interpolated tasks consisted of listening to a "pop" music selection and rating it for familiarity and liking.)

Timing. Each learning trial was timed (6 minutes) and instructions allowed only one reading of the communication each time. Thus, 3 exposures to the communication meant objectively 3 readings of the communication, regardless of individual differences in reading speed of the Ss.

"Neutral" task. Ss in each exposure condition had their last exposure to the communication during the final (the third) learning trial. Hence, the intervals between the final exposure and the immediate posttest measures or the delayed posttest measures were comparable across exposure conditions. This was accomplished by the substitution of an attitudinally-neutral "learning" task for the first trial for the 2-exposure group, for the first two trials for the one-exposure group, and for all three trials for the no-communication control groups. The neutral task consisted of looking at a set of cartoons and subsequently rating the set on overall "pleasantness," "humor," and "central theme." Where more than one cartoon presentation was needed, different cartoon sets (three in all) were used. Cartoon sets were arranged so that the same cartoon set (cartoon set A) immediately preceeded the first communication presentation in the 2 and 1 exposure conditions.

Premeasure. All Ss, regardless of exposure condition, indicated their favorableness-unfavorableness on an 11-point graphic scale

immediately prior to reading their first communication. Control group Ss responded to the premeasure (and fact quiz) immediately after their last cartoon presentation.

Fact quiz. To encourage learning, a short "fact quiz" followed each presentation of the communication. (Ss not receiving a communication on a particular trial rated the cartoons during this time.) Fact quizzes were arranged so that Ss receiving more than one exposure to the communication responded to a different fact quiz each time. (In this way, confoundings between communication learning and "test" learning were eliminated.) However, all Ss responded to the same fact quiz after the last presentation of the communication (trial 3 for all exposure conditions). Hence, the effect of number of exposures on learning could be assessed by the same measure.

Immediate post-communication attitude measure. For half the Ss in all exposure (and source) conditions, 4 semantic differential scales on the topic served as the immediate-post-exposure attitude measure. (The remaining half of the Ss responded to the delayed attitude measure only.)

In addition, all Ss answered a "demographic" questionnaire on birth date, birth order, and sex. Although Ss were anonymous and did not put their names on any of the questionnaires, the demographic data served to match their delayed measure responses (to be discussed below) to their learning booklets.

Delayed measure. After a 4-6 week delay, Ss participated in a survey with a different investigator, again in the classroom setting.

The survey consisted of a questionnaire to "assess the opinions of college students on a variety of topics for the Hunter (or Lehman) College debating club." All Ss responded to semantic differential scales on several topics (the first of which was the critical topic). They also responded to questions concerning action intentions on the issues; recall and evaluations of the source; and the source's position as expressed in the communication that they had read. At this time, Ss again responded to the critical "fact quiz" used in the first session, as well as to the demographic information questions used for matching purposes.

After all Ss had been run through the delayed measure the entire procedure was explained, when class time permitted. This helped to keep the true purpose of the delayed measure confidential until all Ss had been run.

Detailed Procedure

All Ss (in all exposure and control groups) received a set of four booklets, an IBM answer sheet and pencil (see figure 2). Booklets and answer sheets were pre-numbered for identification. Ss were instructed not to put their names on any of the materials and were told that their responses would be anonymous. The use of separate booklets made it difficult for anyone to look back at the communication in answering the fact quizzes. The study was introduced as different from the usual studies of human learning because of its use of prose, pictorial and auditory materials. (See Verbal Instructions, Appendix A). Ss were told that there would be several presentations of material with a quiz after each one, and that the various learning trials would be timed. They were instructed to go through the material on any presentation one time only. They were then asked to begin, and a stop watch was visibly started by E.

Three Exposure Condition

Learning trial 1. The first page of Booklet 1 introduced this phase of the experiment as a test of "people's ability to learn prose material." Ss were told that they would have time to read the selection only once, and that they were to stop after one reading. The next page introduced the topic, validity of ESP, and provided the premeasure: an 11-point graphic scale ranging from 1 (definitely believe) through 6 (neither-nor) to 11 (definitely disbelieve) headed "extra sensory perception (ESP) as an actual, reputable phenomenon." This was followed by a 7-point graphic scale ranging from 1 (extremely below average in importance to me) through 4 (average) to 7 (extremely above average in importance to me). The last two pages in the booklet contained a two-page communication

attributed to either a high credible, a low credible or to no source (anonymous). The communication argued against the existence of any scientific evidence to support a belief in ESP.

The first page of Booklet 2 contained a 5-question multiple choice quiz referring to "the material you have just read." (To further prevent "cheating," Ss answered these questions on the IBM sheet.) Ss were allowed two minutes to complete the quiz. Next, all Ss listened to 30 seconds of a familiar popular music selection played on a tape recorder. Then they turned to the next page marked "pop quiz 1" and responded to two questions about the selection. The first question asked about their "familiarity with the selection"; and the second, how much they liked the selection.

Learning trial 2. Ss then turned to the next page in Booklet 2 which reintroduced the experimenter's interest in people's ability to learn prose material. The last two pages of Booklet 2 contained the identical communication and source designation that was presented in "trial 1." Again, Ss were timed and asked to stop after one complete reading of the communication.

The first page of Booklet 3 contained a second and different 5-question multiple-choice quiz on "the material you have just read." Again Ss had two minutes to complete this quiz. Next, all Ss listened to a second popular music selection for 30 seconds and then responded to "pop quiz 2" on the next page of the booklet. The questions in "pop quiz 2" were identical to "pop quiz 1."

Learning trial 3. Ss then turned to the next page of the booklet which once again introduced the E's interest in "people's ability to learn

prose material." The last two pages contained the third presentation of the identical communication attributed to the same source as in trials 1 and 2.

Immediate post questionnaire. When time was up, all Ss turned to the first page of Booklet 4. The first page contained the critical 10-question quiz on "the material you have just read." As Ss completed this quiz (on the IBM sheet) they were instructed to continue through to the end of the booklet. The next page of the booklet contained the attitude measure consisting of four 7-point semantic differential scales: true-untrue; honest-dishonest; probable-improbable; existent-non-existent; headed by the phrase "extrasensory perception (ESP) as an actual reputable phenomenon." This page was omitted for Ss in the 1PT (delayed attitude measure only) condition. The next page contained the author evaluation measure consisting of six semantic differential scales: knowledgeable-uninformed; my kind-not my kind; trustworthy-untrustworthy; influential for me-not influential for me; experienced-inexperienced; fair-one sided. This page was headed by the instruction: "Rate the speaker in the transcript you just read as a SOURCE OF INFORMATION on the topic of EXTRA SENSORY PERCEPTION AS AN ACTUAL REPUTABLE PHENOMENON."

The next page contained a space for Ss to comment on the study and to give their general thoughts and impressions of its purpose and hypotheses. This allowed Ss to indicate whether they felt that they were in an influence situation. Ss then rated the strength of the author's argument on a 7-point graphic scale ranging from 1 (extremely strong) through 4 (neither-nor) to 7 (extremely weak).

Ss were next asked about their familiarity with the arguments presented and whether the arguments were as expected. This allowed them to note any suspicions about source attribution. The next page asked Ss to indicate "how they had handled" the learning task and whether they had read the communication each time it was presented. (This page was omitted for the 1-exposure and control conditions.) On the last page, Ss rated the "pleasantness of participating in the study" on a 7-point graphic scale ranging from 1 (extremely pleasant) through 4 (neither-nor) to 7 (extremely unpleasant). The last part of the page asked for "DEMOGRAPHIC DATA" consisting of birth order, sex, birth date and "major." (This information was used in matching the delayed session booklets to the learning session sets.)

Two Exposure Condition

Learning trial 1. Since all exposure conditions were counterbalanced and run in the same classroom at the same time, the 2 exposure Ss looked at a series of cartoons (Cartoon set A) selected from popular magazines, in place of the communication during Trial 1. They then responded to a cartoon quiz (in place of the first communication quiz) which asked for rated liking, rated pleasantness, rated funniness and recurring theme of the cartoons, and for a description of the cartoon liked best.

Learning trial 2. After the pop music selection and "pop quiz 1," Ss were introduced to the E's interest in "people's ability to learn prose material." The next page contained the pre-measure and question on importance, and then the ESP communication.

Learning trial 3. Booklets 3 and 4 for the 2 exposure condition were identical to those for the 3 exposure condition. Again, Ss in the 1PT (delayed attitude measure only) condition did not respond to the attitude measure at this time.

One Exposure Condition

Learning trial 1. Ss in the 1 exposure condition looked at cartoon set B and answered the cartoon quiz specified above.

Learning trial 2. During this trial, Ss looked at a different cartoon set (set A), and then responded to the identical cartoon quiz.

Learning trial 3. After the second popular music selection and "pop quiz 2," Ss were introduced to the experimenter's interest in "people's ability to learn prose material," responded to the pre-measure page, and then read the ESP communication. Booklet 4 was identical to that of the 3- and 2-exposure conditions. Again, Ss in the 1PT condition did not respond to the attitude measure at this time.

No-Communication Control Groups

Ss in the no-communication control condition looked at cartoon series C during the first trial, cartoon series B during the second, and cartoon series A during the third. At the end of the third trial, Ss found in Booklet 4 two short questions about the "theme most represented in all the cartoon sets" and "the cartoon that they remembered best, regardless of liking." The next page introduced the experimenter's interest in "how much information people have about some topics of interest." This was followed by the pre-measure page which was identical to that for the experimental Ss.

The next page contained the critical 10-question quiz on the ESP

material. However, the heading expressed interest in "how much information people have about the subject of ESP." The next page contained the attitude measure responded to by the experimental Ss. (Ss in the control 1PT condition did not respond to the attitude measure at this time.)

The next page requested ratings of a certain individual as a source of information on the topic of ESP. One source description (identical to either the high credible or the low credible source description used in the experimental booklets) was presented followed by the six author evaluation scales. Thus, there was a Hi source control group and a Lo source control group, eliminating the problem of "comparative ratings." Ss were instructed to rate the individual described as a "SOURCE OF INFORMATION on the topic of EXTRA SENSORY PERCEPTION AS AN ACTUAL REPUTABLE PHENOMENON." This was followed by a page asking for their comments, thoughts, and general impressions of the study.

The last page contained the same "pleasantness" rating scale and demographic information questions asked of the experimental Ss.

Delayed Testing Session

Four to six weeks after the initial learning-trials session, Ss were asked to respond to a questionnaire for the "Speech and Dramatics, Debating Society," presented by a female investigator. The cover letter attached to each questionnaire indicated that the club's advisor had prevailed upon the various instructors for a few minutes of time in order to get a quick estimate of interest in the topics already selected for debates. This information was needed to allow scheduling and arrangement

of sufficient space for all interested.

The first page of the booklet contained graphic scales on three topics, the first of which was "ESP (extrasensory perception) as an actual phenomenon." To help disguise the true purpose of the questionnaire, the 7-point graphic scales were in the form of a row of boxes between polar adjective sets numbered from -3 to +3, with 0 at the midpoint. The same four sets of polar adjectives which comprised the attitude measure in the learning session were presented, in different order.

The next page asked about S's willingness to engage in actions in support of the idea that ESP is an actual phenomenon (and in support of the other two topics). Specifically, the three "actions" were "convince a friend," "wear a lapel button," and "distribute pamphlets." Three response alternatives were allowed: Yes, Don't know, and No.

The next page asked for Ss' comments and suggestions about the topics, and any questions that they might have. This again allowed Ss to note any suspicion that the questionnaire was part of the psychology experiment. Demographic questions were asked on this page also, in a form slightly disguised from that used in the learning session. Ss were also asked about their intentions to attend any of the debates or their reasons for not doing so.

The next page indicated that the Debating Society was aware that "some students had been given a communication to read about one of the scheduled topics, ESP," and that the club was interested in "people's reactions to public speakers." Ss were asked whether they recalled the

communication and could name or describe the speaker. They were then asked to rate him on the same semantic scales used in the learning session. The following three format changes were introduced for the purpose of disguise: the order of scales was mixed; boxes numbered from -3 to +3 with 0 as the midpoint were substituted for the graphic scales; and the scales were presented as response alternatives for separate questions (e.g. How fair was his presentation on ESP?-- fair-unfair.)

The last question on the page asked Ss to recall the speaker's position on the topic of ESP as an actual reputable phenomenon according to his speech. The 11-point scale used as a premeasure in the learning session was presented here, again with boxes substituted for the graphic scale and numbered from -5 to +5, with 0 as the neutral point.

The last page presented the idea that the Debating Society was interested in how much information people had on the topic of ESP and the identical 10-question multiple-choice critical quiz used in the learning session was presented.

After collecting the booklets, E left the room without further explanation. Upon completion of the delayed session testing for all class groups participating in the study, debriefing sessions were scheduled where class time permitted.

BOOKLET DESIGN, "Learning Experiment"

3 Exposure Condition	2 Exposure Condition	1 Exposure Condition	Control Condition
TRIAL 1 (Booklet I)	TRIAL 1 (Booklet I)	TRIAL 1 (Booklet I)	TRIAL 1 (Booklet I)
Introduction Pre-Measure COMMUNICATION	Introduction CARTOON SET A	Introduction CARTOON SET B	Introduction CARTOON SET C
(Booklet II) Fact Quiz C	(Booklet II) Cartoon Quiz	(Booklet II) Cartoon Quiz	(Booklet II) Cartoon Quiz
* *	* *	* *	* * ← POP MUSIC SELECT For all Ss (1)
Pop Music Quest.	Pop Music Quest.	Pop Music Quest.	Pop Music Quest.
TRIAL 2 Introduction COMMUNICATION	TRIAL 2 Introduction/Pre-Measure COMMUNICATION	TRIAL 2 Introduction CARTOON SET A	TRIAL 2 Introduction CARTOON SET B
(Booklet III) Fact Quiz B	(Booklet III) Fact Quiz B	(Booklet III) Cartoon Quiz	(Booklet III) Cartoon Quiz
* *	* *	* *	* * ← POP MUSIC SELECT For all Ss (2)
Pop Music Quest	Pop Music Quest.	Pop Music Quest.	Pop Music Quest.
TRIAL 3 Introduction COMMUNICATION	TRIAL 3 Introduction COMMUNICATION	TRIAL 3 Introduction/Pre-measure COMMUNICATION	TRIAL 3 Introduction CARTOON SET A
(Booklet IV)	(Booklet IV)	(Booklet IV)	(Booklet IV)
Fact Quiz A	Fact Quiz A	Fact Quiz A	Cartoon Quiz Introduction/pre-measure
Post Attitude Measure(½)	Post Attitude Measure(½)	Post Attitude Measure(½)	Fact Quiz A Post Attitude Measure (Immed gp)
Personal Data (Demographic) Deception Questions (suspicion)	Personal Data (Demographic Deception Questions (suspicion)	Personal Data(Demographic) Deception Questions (suspicion)	Personal Data (Demographic) Deception Questions (suspicion)

(* Pop Music Selection-½ minute)

Figure 2

Pretesting

Topic and sources. Seventy-four Ss participated in a questionnaire study designed to tap the spread of initial opinions of Hunter College Ss on several topics. In addition, the same Ss rated a number of potential sources of information for each topic. The sources were selected a priori as being one of the following: high expert or low expert or high trustworthy or low trustworthy. The four kinds of sources (several representatives of each type for each issue) were rated separately by one subset of Ss. Another subset of Ss rated combinations (high expert-high trustworthy or low expert-low trustworthy) of the aforementioned source characteristics. Inspection of the distribution of the self ratings of the Ss for the issue "Extrasensory perception (ESP) as an actual, reputable phenomenon," indicated that the majority of the Ss were in favor of a belief in ESP. (The mean score, on a 1 (definitely believe) to 11 (definitely disbelieve) scale was approximately 4.) In addition, the data pattern suggested that a split between SR 1-3 and 4-6 would yield samples of comparable size. Accordingly this topic was selected as the one to be used in the present study. In addition, two source combinations for this issue: Psychic researcher (High Expert-High Turstworthy) and Gypsy fortune teller, circus performer (Low Expert-Low Trustworthy) proved to be significantly different (by t-test, $p < .05$) on the trustworthy and expert dimensions of the source semantic differential ratings, and were selected as the high and low credible sources respectively.

Communication and source descriptions. Several versions of a communication which was opposed to the belief in ESP were tested and

revisions were made in the communication and the source descriptions until the responses were stabilized in terms of the semantic scales. Also, various combinations of semantic scales intended as the post attitude measure and also the author evaluation measure were tested.

A final test of the materials was performed using 66 high school seniors in several English classes.[2] The pretest experimental Ss responded to the premeasure scale (1-11 believe-disbelieve scale: SR) and then read the final version of the communication with no source mentioned (anonymous source condition). Next they responded to a content quiz, then the post-measure of attitude (semantic differential scales) and finally an author evaluation measure (semantic differential scales). The Ss in the control condition responded to a similar booklet; however, the communication was omitted. In place of the author evaluation measure, control Ss responded either to the Professor or to the Gypsy source description, on the same anonymous author evaluation scales used by the communication group. Analysis of variance of the post attitude scores of these pretest Ss revealed that the Mod communication group was more favorable to the communicator's position than was the Mod (SR 4-6) no-communication control group. (The difference between the Ext (SR 1-3) experimental and control groups did not reach significance.) One-way ANOVA of the control group author evaluation scores revealed that the "professor" was evaluated significantly more favorably than the "gypsy." The evaluation of the Anon source (after reading of the communication) was intermediate between the two named sources. By t-tests, the three source evaluations were significantly different from each other. Finally, comparison of SR and post attitude scores of the high school control Ss with control Ss taken from the college sample yielded no significant F values. Therefore, it can be said that

these Ss constituted an appropriate pretest group.

Quiz. Four additional pretest groups (77 college Ss) were run to test the quiz items. Each group responded to the premeasure, and then to one of the following combinations:

(1) In order to test for "sequence" effects between the premeasure, quiz, and post attitude semantic differential scale, the following two control conditions were used -- (a) CQ: responded to the quiz and then to the post attitude semantic differential measure; (b) CA: responded to the post attitude semantic differential and then to the quiz. Comparison of the CA and CQ semantic differential responses indicated that there was no significant difference between the two conditions. That is, placement of the quiz did not differentially affect responses on the post attitude measure. Therefore, it was decided that control Ss (and experimental Ss) in the main experiment would respond to the quiz first and then to the post communication attitude measure. Thus the sequence of events (except for presentation of the communication) was identical for the control and experimental Ss (see method section).

(2) In order to designate items in the "final" quiz as either "attitudinally relevant" or "attitudinally neutral," Ss were asked to predict responses to the quiz items either as they expected a strong believer in ESP would answer (Predict Believe), or as they expected a strong disbeliever in ESP would answer (Predict Disbelieve).

Based upon Chi Square comparisons of the responses of the Believe vs Disbelieve Ss, the quiz items were designated as fact or opinion-Q items. Due to the occurrence of two correct answers for question 5, and the high incidence of control group Ss selecting the correct choices, this item was

eliminated from the analysis of fact and opinion-Q scores. Items were designated as opinion-Q when there was a clear difference between the choice given by the Predict Believe vs Predict Disbelieve groups. Items were designated as fact on the basis of little systematic difference between the responses of Believe vs Disbelieve predictors. In addition, in most cases, the data supported decisions that could be made upon the "face validity" of the items. When there was a discrepancy between the data and face validity expectations, the final decision was based upon the data. The final designations were items 2, 4, 7, 8 as opinion-Q and items 1, 3, 6, 9, 10 as fact (see Appendix A). A final check on the usefulness of the items was made by inspection of the control Ss' responses to the critical items. In both the fact and opinion-Q items, the average score was 20% correct. Therefore, the items left room for an effect of the communication.

Procedure. A preliminary test of the procedure was performed with a small number of Ss (15). The order of presentation of filler material-communication was counterbalanced (communication-filler material) to check on the reactivity of the cartoon filler items. In addition, any suspicion generated by the procedure (re: opinion change) and the delayed measure ("disguised psychology experiment") was assessed. Although an earlier version of the communication and source attribution was used, it was evident that there were no differences between the two conditions (filler first vs communication first) on responses to the post-communication attitude measure. However, the results pointed up the need for several minor adjustments in the procedure, which were made in designing the main experiment. Most important, although only two weeks had elapsed between

the learning session and the disguised delayed measure (as compared to 4-6 weeks in the main experiment), none of the Ss expressed suspicion about any connection. Even during the debrief session by the female E, there was some difficulty in getting the Ss to see the connection between the two "different experiments." It appears that the attempt to disguise the connection between the two parts of the procedure was highly successful.

The pretest can be summarized as follows:

1. The topic (Extrasensory perception (ESP) as an actual reputable phenomenon) and a high credible (high trustworthy-high expert) source (Psychic researcher) and a low credible (low trustworthy-low expert) source (gypsy fortune teller-circus performer) were selected on the basis of the responses of 77 pretest Ss to a variety of issues and sources.
2. The communication (anti-belief in ESP) was revised and stabilized in terms of the semantic scales to be used for post-attitude measures based upon the responses of several groups of additional Ss (approximately 75 in all).
3. The final version of the communication and source descriptions was tested in the "usual" attitude change experiment design using 66 Ss.
4. The placement of the final quiz for the control group booklets was tested with Ss in two different counterbalanced conditions to establish that there was no sequence effect of the quiz on the responses of the control Ss to the post-communication attitude measure, nor any effect of slight differences in time between premeasure and post communication attitude measure.
5. The quiz items were tested so as to divide them into attitudinally relevant vs attitudinally neutral items, based upon the responses of 40 judges.

6. The effectiveness of the disguised delay measure and the absence of sequence effects of the "non-reactive filler material" (cartoons) were tested using 15 additional Ss.

Results

Number of Subjects

It was planned to have equal numbers of Ss in each cell; however, the design of the study, which called for delayed testing without any forewarning led to a certain amount of "attrition." Therefore, only Ss who participated in both the learning session and the delayed posttest session were included in the analyses. Due to the nature of the resulting sample, an "unweighted means solution" was used in all analyses (Winer, 1962).

Control Data

Source ratings. The correlation matrix of the control group ratings of the six semantic scales is presented in Table 37. Since the ratings were highly interrelated, the total of the six ratings (Author Evaluation Score) was used in the analyses that follow. Analysis of variance (see Table 1, Appendix B) of the control group ratings of the source descriptions (Author Evaluation Score) yielded a significant main effect of Source ($F = 51.30$, 1/35 df, $p < .001$). The "professor" (hereafter referred to as the Hi source) received a relatively favorable rating (17.20), while the "gypsy" (hereafter referred to as the Lo source) received a relatively unfavorable rating (32.07); these ratings are on opposite sides of the neutral point of the scale ("24"). Hence, the sources were discriminated as required.

Attitude measure. Control group ratings of the four semantic scales were highly interrelated (see Table 2, Appendix B). In addition, the intercorrelations between the self-ratings (SR) of

the control group and either the immediate-after or delayed test total semantic differential score (total of the 4 semantic scale scores) were both significant (r = .65 and r = .62, respectively). In view of these results, a composite total semantic differential score was used as the main measure of post-communication attitude (Attitude score).

The 2-test control group's immediate-after attitude score and delayed test attitude score were highly intercorrelated (r = .87); hence the basic attitude measure exhibited satisfactory reliability.

Initial Comparability of Groups

As a premeasure of attitude (Self-rating: SR), all Ss rated their belief or disbelief in ESP on an 11-point graphic scale headed "Extra Sensory Perception (ESP) as an Actual, Reputable Phenomenon." The scale points ranged from 1 (Definitely Believe) through 6 (neither-nor) to 11 (Definitely Disbelieve). Only Ss who responded on the "believe" side of the scale (1 - 6) were included in the study. The point of view expressed by the communicator was opposed to a belief in ESP, and thus, generally opposed to the position of these Ss. In addition, an approximately median split of the sample was used to form two subgroups differing in initial opinion: Ext (Ss extremely opposed to the communicator's point of view: SR = 1-3) and Mod (Ss moderately opposed to the communicator's point of view: SR 4-6).

The mean Self Rating scores (SR) of the experimental and control group Ss are presented in Appendix B (Table 3). By analysis of variance (see Appendix B, Tables 4 and 5), none of the independent variables, excepting of course initial opinion, produced a significant main effect. Hence, experimental condition was not confounded with pre-communication

Opinion.

Pleasantness

A possible source of difficulty in the design was suggested by the work of Janis et. al (Janis, Kay, and Kirschner, 1965) who demonstrated that a pleasant atmosphere (e.g. eating while reading) could serve to enhance the effects of a persuasive communication. Specifically, the use of cartoons as non-reactive filler material might have had such an effect in this study. This would work against any hypothesized exposure effects, since there was more cartoon material with fewer exposures to the communication. Therefore, all Ss were asked to rate the "pleasantness of being in the experiment" on a 7-point graphic scale (1= extremely pleasant; 4= neither nor; 7= extremely unpleasant). The mean"pleasantness" response of each of the groups is presented in Appendix B (Table 6). Analysis of variance (Appendix B, Table 7) yielded only a marginal effect of Tests ($p < .10$). The 2PT group rated the experiment slightly, but not significantly more pleasant than did the 1PT group. However, the means for all groups fell on the pleasant side of the scale. Hence, "pleasantness" was not confounded with experimental condition.

Immediate-after Effects on Attitude

The mean immediate-after attitude scores of the Ss in the 2PT condition are presented in Table 1. Analysis of variance (Table 2) yielded an Initial Opinion main effect ($p < .001$) and a marginally significant Exposure x Source interaction ($p < .085$).

Since there was no significant main effect of Exposures and no Initial Opinion x Source interaction, Hypotheses 1 and 4 were not supported in the immediate-after attitude data. The main effect of

Initial Opinion is, of course, due to the original difference between the two attitudinal subgroups; whereas when ANCOVA is used, this main effect is no longer significant.[3] The 3 x 3, E x S interaction was decomposed into two orthogonal 2 x 3 comparisons, following the prediction in Hypothesis 2; namely, 1 vs (2+3) exposures x Source ($F = 2.44$, 2/164 df, $p < .10$) and 2 vs 3 exposures x Source (n.s.). Further decomposition of the Source factor in the 1 vs (2+3) exposures x Source interaction into two orthogonal 2 x 2 comparisons supported Hypothesis 2a, since there was a greater difference between the Hi and Lo source groups after 1- exposure than after multiple exposures [1 vs (2+3) exposures x Hi vs (Lo + Anon) source, $F = 4.66$, $p < .05$, 1/164 df; and 1 vs (2+3) exposures x Lo vs Anon source, n.s.].

Effects on Attitude Over Time: 2PT Condition

The effects of the experimental conditions on attitude over time were assessed in two analyses: comparison of the immediate-after vs delayed test attitude scores of the 2PT Ss; and comparison of the attitude scores of the Ss tested immediately after (2PT) vs the attitude scores of the Ss tested at the delayed time only (1PT).

Analysis of the attitude scores of the 2PT Ss was made via a repeated measures analysis of variance. The immediate-after and delayed-test attitude scores of the 2PT groups were used as the "measures" factor (Winer, 1962). The means are in Table 1 and the ANOVA is presented in Table 4. The analysis yielded a main effect of Inital Opinion ($p < .01$), a main effect of Measures ($p < .01$), and a marginally significant Exposures x Source interaction ($p < .10$). There was no interaction between Source and Measures, and therefore Hypothesis 3 (sleeper effect) was not supported in this analysis.

The main effect of Measures was such that Ss were closer to the communicator's position immediately-after than at delayed-testing (Table 5). Newman-Keuls tests indicated that the immediate-after means were significantly different from their corresponding delayed-test means at each exposure level (all p values < .01). Analysis of the simple effects of exposure at the immediate-after level of the Exposure x Measures interaction was significant ($F = 3.46$, 2/164 df, $p < .05$). The pattern of immediate-after exposure means was 3 > 1 > 2. (By Newman Keuls test, 3 vs 2, $p < .05$). It was evident by inspection that the delayed test means were at the control group level (control group mean = 12.59). Thus, it appears that the least effect on opinion immediately after exposure was in the 2-exposure condition, but that this difference between exposure conditions was not maintained over time.

Effects on Attitude over Time: 2PT vs 1PT Condition

In order to compare the immediate and delayed effects of the experimental conditions on independent groups, a 4-way ANOVA (Table 7,8) was performed. The immediate-after attitude scores of the 2PT groups and the delayed-test attitude scores of the 1PT groups composed the "Tests" factor. (See Table 6 for the group means.) The analysis resulted in the following significant main and interaction effects: Tests ($p < .001$); Initial Opinion ($p < .001$); Tests x Exposures ($p < .05$); Initial Opinion x Source ($p < .06$, marginal); and Exposures x Source ($p < .025$).

As in the previous analysis, there was no main effect of Exposure or interaction between Source and Tests. Thus, again, there was no support for Hypothesis 1 (Exposures) or 3 (sleeper effect).

Inspection of the patterns of means for the two main effects (Table 8) indicated that, similar to the effects reported in the repeated measures analysis of the 2PT condition, groups tested immediately after exposure were more favorable to the communicator's position than were those tested at the delayed time; Also, overall, Mod Ss were more favorable to the communicator's position than were the Ext Ss. In order to test Hypothesis 2 in this analysis, the 3 x 3 Exposure x Source interaction was analysed into two orthogonal 2x3 interactions [3 vs 2 Exposures x Source, n.s.; (3+2) vs 1 Exposure x Source, $F = 5.22$, 2/335 df, $p < .01$]. Further decomposition of the source factor in the latter interaction supports an interpretation of a reversal of source group pattern between single and multiple exposures [(3+2) vs 1 x Hi vs (Lo+Anon), $F = 10.25$, 1/335 df, $p < .01$; (3+2) vs 1 exposure x Lo vs Anon, n.s.] . Specifically, after one exposure, the Hi source group was most favorable to the communicator's position (Hi > Lo+Anon) while at 2 and 3 exposures, the Hi source groups were least favorable to the communicator's position, although the differences between the source groups in the multiple exposure conditions were not significant. [Simple effects of source at 1-exposure: Hi vs (Lo+Anon), $F = 6.22$, 1/335 df, $p < .025$]. Thus, as predicted in Hypothesis 2, multiple exposures reduce the source effect found with one exposure.

In order to test the predictions of a greater source effect on attitude among the Ext than among the Mod Ss (Hypothesis 4), the 2 x 3 Initial Opinion x Source interaction was decomposed into two 2 x 2 comparisons [Hi vs (Lo+Anon) x Initial Opinion, $F = 4.75$, 1/335 df, $p < .05$; Lo vs Anon x Initial Opinion, n.s.] . The results support an interpretation of a reversal of the source pattern between the Ext and Mod

Ss. That is, among the Ext Ss, the Hi source group was more favorable to the communicator's position than were the other two groups; while among the Mod Ss, the Anon and Lo source groups were more favorable than was the Hi source group. Thus, although the I x S interaction was predicted by Hypothesis 4, the pattern for the Ext Ss accords with the prediction while the pattern for the Mod Ss does not.

The occurrence of a T x E interaction in this analysis was of interest since the analysis of the 2PT condition reported previously (Table 5) yielded an interaction of exposures over time (E x M). The pattern of means for the Tests x Measures interaction in the current analysis suggests that the difference between the 2PT and 1PT groups was greater at 1 and 3 exposures than at 2 exposures. [Newman-Keuls tests indicated that the differences between 2PT and 1PT were significant at 3- and 1-exposures (all p values $< .01$) but not at 2-exposures.] By inspection, it is evident that, at the 1PT (delay only) level, the 2-exposure group was most favorable to the communicator's position (2-exposure > 1-exposure, $p < .05$, Newman-Keuls; Ext:2-exposure > control, $p < .05$, Dunnetts test). Thus, there is support for an interpretation that there was less reduction in favorableness towards the communicator's position over time in the 2-exposure condition than in the 1- or 3-exposure conditions. In combining the results of the previous analysis of the E x M interaction (Table 5) with the present T x E interaction analysis, it appears that with the same Ss tested twice the immediate-after effect of the 2-exposure condition on attitude is less than that of the 1- and 3-exposure conditions, but this difference between exposure conditions disappears over time. However, with different

Ss tested at immediately-after vs the delayed time, the effect of the 2-exposure condition on attitude, which is initially less than that of the 1- and 3-exposure conditions, is maintained better than the other two over time.

Effects on Attitude over Time: 1PT Condition

ANOVA of the attitude scores for the 1PT groups (Appendix C, Table 1, 2) yielded an Initial Opinion x Source interaction ($p < .02$), and a marginal main effect of Exposure ($p < .073$). The above analysis lends support to some of the results of the 2PT vs 1PT attitude scores (table 7). It should be noted that the I x S interaction (H-4) in the previous analysis was also significant in the present 1PT analysis, but not in the analysis of the 2PT attitude scores (Table 2). This pattern of results suggests that the I x S interaction was strongest over time. Orthogonal decomposition of the 2 x 3 Initial Opinion x Source interaction in the present analysis supports the earlier interpretation of a reversal of source patterns between the Ext and Mod Ss [Hi vs Lo source x Initial Opinion, n.s.; (Hi + Lo) vs Anon source x Initial Opinion, $F = 6.52$, 1/171 df. $p < .01$]. That is, among the Ext Ss, the Hi and Lo source groups were more favorable to the communicator's position than was the Anon source group, whereas, among the Mod Ss, the Anon source group was more favorable to the communicator than were the other two groups (Mod: Anon > Hi, $p < .01$, Newman-Keuls). Thus the analysis of the I x S interaction indicated that the source patterns were similar to the patterns in the I x S interaction found in the 2PT vs 1PT analysis reported earlier.

The main effect of Exposures in the present analysis is also

consistent with the 2PT vs 1PT analysis. In the latter analysis, the interaction of Tests x Exposures was discussed partially in terms of the greater residual effect of the 2-exposure condition. By inspection, it is clear that at 1PT, the 2-exposure groups are more favorable to the communicator's position than are the 1- and 3-exposure groups (although the differences between exposure groups did not reach significance: all p values $> .10$, Newman -Keuls). As mentioned previously, the Ext 1PT 2-exposure groups were significantly more favorable to the communicator's position than was the corresponding control group. (See the following discussion of control group comparisons.)

Comparisons with control. Comparisons of the Exposure groups with the appropriate control groups by Dunnetts test[4] indicated that among the 1PT Ext Ss, the combined 2-exposure groups were more favorable to the communicator's position than was the control group ($p < .05$) Similar comparisons for the Mod Ss did not reach significance . Comparison of the Source groups with appropriate control groups indicated that, among the 1PT Ext Ss, the combined Lo source groups were more favorable to the communicator's position than was the control group; but this difference was just short of significance (combined Lo mean = 11.83; need 11.98 for $p < .05$). Similar comparisons among the Mod Ss did not reach significance. (None of the Exposure or Source comparisons for the 2PT Ss with their control groups, either immediately-after or at delayed testing, reached significance.)

One-Exposure Analyses

Since much of the previous work in attitude change and particularly some of the assumptions that formed the basis of the present study were based upon designs that used one exposure to a communication or communicator, a separate analysis of the one-exposure groups was performed. This allowed some direct comparisons of this study with previous efforts in the area (e.g. studies of sleeper effects).

One-exposure immediate-after effects on attitude. The mean immediate-after attitude scores of the 2PT-1-exposure groups are presented in Table 9. Analysis of variance (Table 10, 11) yielded a main effect of Initial Opinion ($p < .002$), and a main effect of Source ($p < .027$). Inspection of the pattern of means of the I main effect indicates that the Mod Ss were more favorable to the communicator's position than were the Ext Ss. Inspection of the pattern of means of the main effect of Source reveals that the Hi source group was more favorable to the communicator's position than were either the Lo or Anon source groups, which were not different from each other (Hi >Lo; Hi > Anon; all p values < .05, Newman-Keuls; Anon vs Lo, n.s.). Thus, although the expected difference between the Hi and Lo source groups was obtained, the absence of any difference between the Lo and Anon source groups suggests that "discounting" of the Lo source did not occur in the present study. This point, as it relates to Hypothesis 3, will be elaborated in the Discussion section.

One-exposure effects on attitude over time: 2PT condition. In order to assess the effect of one exposure to the communication over time, a repeated measures analysis of variance was performed. The means are in Table 9, and the analysis in Table 11. The analysis yielded

main effects of Initial Opinion ($p < .01$), Source ($p < .05$), and Measures ($p < .01$). There was no interaction between Source and Measures and thus no support for the "sleeper effect" prediction of Hypothesis 3. Inspection of the means of the I main effect (Table 12) reveals that the Mod Ss were more favorable to the communicator's position than were the Ext Ss. Decomposition of the Source main effect into two orthogonal comparisons (Hi vs (Lo + Anon), $F = 6.23$, 1/52 df, $p < .025$; Lo vs Anon, n.s.) indicates that the Hi source groups were more favorable to the communicator's position than were the other source groups. Thus, in the 2PT condition, there was no change in the Source pattern over time.

One-exposure effects on attitude over time: 2PT vs 1PT condition. In order to compare the effects of attitude measurement immediately after one exposure to a communication with measurement at delayed time only, a 3-way analysis of variance (Table 14, 15) was performed. The 2PT immediate-after attitude scores and 1PT delayed attitude scores composed the "Tests" factor (means in Table 13). The analysis yielded main effects of Tests ($p < .01$), Initial Opinion ($p < .01$), and Source ($p < .05$), and a Tests x Initial Opinion x Source interaction ($p < .10$). The means of the Tests main effect (Table 15) show that the 2PT Ss were more favorable to the communicator's position than were the 1PT Ss. The Initial Opinion means pattern indicates that the Mods were more favorable to the communicator's position than were the Ext Ss. Decomposition of the Source main effect into two orthogonal comparisons (Lo vs Anon, n.s; Hi vs (Lo + Anon), $F = 8.37$, 1/110 df, $p < .01$) indicates that the Hi source groups were more favorable to the communicator's position than were the other source groups (which were not significantly different from

each other), supporting the analysis of the main effect of Source described in the 2PT analysis over time above (i.e. the absence of a "discounting effect" in the Lo source condition).

In order to test the "sleeper effect" pattern predicted in Hypothesis 3, the Tests x Initial Opinion x Source interaction was analysed as two separate Tests x Source interactions, one at each level of Initial Opinion (i.e. Ext and Mod). For the Ext Ss, the Tests x Source (2 x 3) interaction was analysed by two orthogonal comparisons: Hi vs Anon x Tests (n.s.); (Hi + Anon) vs Lo x Tests ($F = 4.41$, 1/164 df, $p < .05$). In addition, the simple effects of Tests at both the Hi and the Anon source levels were significant ($p < .01$). Thus, while the Ext-Hi and Ext-Anon source groups were more favorable to the communicator's position immediately after than at the delayed testing (Ext-Hi: Immediate > Delay; Ext-Anon: Immediate > Delay), there was no significant change over time for the Ext-Lo source groups (Ext-Lo: Immediate = Delay). Although a "maintaining sleeper effect" (H-5) is suggested by the pattern of these data, comparison with the appropriate control groups reveals that only the Hi source group was significantly more favorable to the communicator's position at the 1PT level (see control group comparisons data, below).

For the Mod Ss, on the other hand, analysis of the Tests x Source interaction yielded no significant results.

One-exposure effects on attitude over time: 1PT condition. ANOVA of the 1PT-1 exposure groups at delayed testing (Appendix C, Table E) yielded only the usual main effect of Initial Opinion ($p < .01$).

Comparison with control. Among the Ext Ss, the Hi source groups were significantly different from their respective control groups in the 2PT and the 1PT condition (by Dunnetts test, all p values < .05). None of the comparisons with control for the Mod Ss reached significance.

Quiz

It will be recalled that all Ss (including control Ss) responded to a final quiz on ESP immediately after exposure to the communication condition and then responded to the same quiz items at delayed testing. Based upon pretest data, the final quiz items were designated as either "fact" (attitudinally neutral) or "opinion" (attitudinally relevant) and scored separately. There were five fact items and four opinion items; one item was eliminated from the 10-item final quiz.[5] Immediate-after "fact" and "opinion" scores and also delayed test "fact" and "opinion" scores were compiled for each S. Only Ss who responded to the Quiz both at immediate-after and delayed testing were included in the analyses that follow. Nine Ss did not meet this criterion, and, hence, were not included; however, they were randomly distributed across groups, as can be seen by inspection of the Ns in Table 16.

Fact Scores

Immediate-after. The mean immediate-after fact scores of the experimental groups are presented in Table 16. A 4-way analysis of variance (Table 17) yielded an Exposures main effect ($p < .01$). Orthogonal comparisons of the exposure means ((3 + 2) exposures vs 1 exposure, $F = 7.15$, 1/326 df, $p < .01$; 3 vs 2 exposures, $F = 6.05$, 1/326 df, $p < .05$) suggest that there was an increasing effect of exposure on recall of fact items. Analysis indicated that there was a significant linear trend of Exposures (F - Linear = 20.03, 1/326 df, $p < .01$; F - Quadratic:

n.s.). Thus the findings support the necessary condition of an effect of exposures on recall required by Hypotheses 1 and 2.

Retention (recall) over time, 2PT condition. The mean immediate-after and delayed test fact scores of the 2PT Ss are presented in Table 18. Repeated measures analysis of variance (Table 19, 20) was performed, using the immediate-after and delayed test fact scores as the "measures" factor. The analysis yielded main effects of Exposures ($p < .05$), and Measures ($p < .001$). Orthogonal decomposition of the Exposures main effect ((3 + 2) vs 1 exposure, $F = 3.29$, 1/160 df, $p < .08$; 3 vs 2 exposures, n.s.) indicated that 2- and 3-exposure Ss recalled more fact items than 1-exposure Ss. The pattern of means of the Measures main effect was such that the mean immediate-after fact score was greater than the mean delayed test fact score.

Retention (recall) over time, 1PT condition. The mean immediate-after and delayed test fact scores of the 1PT Ss are presented in Table 21. Repeated measures analysis of variance (Table 22, 23) yielded main effects of Exposures ($p < .01$), Initial Opinion ($p < .05$), and Measures ($p < .001$). Orthogonal comparison of the exposure means (3 vs (1 + 2) exposures, $F = 8.02$, 1/66 df, $p < .01$; 1 vs 2 exposures, n.s.) suggests that recall of fact items was better for the 3-exposure groups than the 1- or 2-exposure groups. The pattern of means for the Initial Opinion main effect indicates that the Ext Ss recalled more fact items than the Mod Ss. The pattern of means for the Measures main effect indicates greater recall immediately after than at delayed testing.

Comparisons with control. By Dunnetts test, immediately after exposure to the communication, at each Exposure and at each Source level, experimental Ss recalled more fact items than the corresponding control

Ss (all p values < .05). However, at delayed testing, only the Ext Ss in the 1PT-3-exposure groups recalled more fact items than the control Ss ($p < .05$).

In summary, it can be stated that there was an increasing effect of exposures on recall of the "attitudinally neutral" (fact) items. In addition, although there was a general reduction in recall over time, the exposure pattern found immediately-after, was maintained over time. Thus the data lend support for the necessary condition of increased recall with multiple exposures required by Hypotheses 1 and 2.

Opinion-Q Scores

Immediate-after. The mean immediate-after opinion-Q scores of Ss in the experimental groups are presented in Table 24. A 4-way analysis of variance (Table 25, 26) yielded a main effect of Exposures ($p < .001$), an Initial Opinion x Source interaction ($p < .05$), and a T x I x E x S interaction ($p < .02$). Orthogonal comparison of the exposure means suggests that there was greater recall of opinion-Q items in the 2- and 3-exposure conditions than in the 1-exposure condition ((3 + 2) vs 1 exposure, $F = 12.50$, 1/326 df, $p < .001$; 3 vs 2 exposures, n.s.). Thus, the exposure effect on learning required by Hypotheses 1 and 2 was found for the "attitudinally relevant" (opinion-Q) items as well as for the "attitudinally neutral" (fact) items as mentioned earlier.

To test the prediction of Anon vs named source differences in learning discussed earlier, the Initial Opinion x Source was decomposed into two orthogonal 2 x 2 comparisons: Anon vs Lo x Initial Opinion (n.s.); Hi vs (Lo + Anon) x Initial Opinion ($F = 6.58$, 1/326 df, $p < .025$). Further analysis of the simple effects of source in the latter significant 2 x 2 interaction yielded a significant source effect for the Ext groups

(Ext: Hi vs (Lo + Anon), F = 9.30, 1/326 df, $p < .01$). Thus, Ext Ss recalled significantly more opinion-Q items in the Hi source condition than in the Lo or Anon source conditions. Whereas, among the Mod Ss, the source pattern (although not significant) is Anon >Lo> Hi. Therefore, the source predictions for the learning of attitudinally relevant (opinion-Q) items (Anon> named-source conditions) were supported among the Mod Ss but not among the Ext Ss.

In order to examine the pattern of the 4-way interaction, the T x I x E x S interaction means were considered as two separate I x E x S interactions at levels of T (2PT and 1PT). Analysis of variance yielded significance for the I x E x S interaction among the 2PT Ss; but a similar analysis for the 1PT Ss was not significant. The I x E x S interaction among the 2PT Ss (F = 3.21, 4/326 df, $p < .025$) was examined for the simple effects of Exposure at the Mod-Lo source level. The results of the analysis (F = 10.18, 1/335 df, $p < .001$) supported the interpretation that the 4-way interaction was due largely to the extremely deviant 2-exposure-Lo source group, among the Mod Ss. In addition, comparison of the simple effects of source at levels of exposure among the Mod Ss leads to a further interpretation that at 1 exposure, the Hi and Anon source groups were not significantly different from each other ((Hi + Anon) vs Lo : F = 5.62, 1/335 df, $p < .025$; Hi vs Anon, n.s.); whereas at 3 exposures, Anon was greater than Hi + Lo ((Hi + Lo) vs Anon: F = 3.89, 1/326 df, $p < .05$). Thus, at 1 exposure, the Hi source group recalled most; while after 3 exposures, it is the Anon source group that recalled most. Thus, the recall pattern of opinion-Q scores for the 2PT Mod Ss ("source effect" at 1-exposure; "communication effect" (Anon >Hi + Lo) at 3-exposures) is similar to the E x S interaction in the attitude scores supporting Hypothesis 2.

Retention (recall) over time, 2PT condition. The mean immediate-after and delayed test opinion-Q scores of the 2PT Ss are presented in Table 27. Repeated measures analysis of variance (Table 28, 29) yielded main effects of Exposures ($p < .001$), and Measures ($p < .001$), and an Initial Opinion x Source interaction ($p < .05$). Two orthogonal comparisons of the exposure means (Table 29) suggest that 2- and 3-exposure Ss recalled more opinion-Q items than 1-exposure Ss ((3 + 2) vs 1 exposure, $F = 5.34$, 1/160 df, $p < .025$; 3 vs 2 exposures, n.s.). The effect of Exposures was consistent with the preconditions of Hypotheses 1 and 2 (i.e. greater recall with multiple than with single exposure). The pattern of means of the Measures main effect showed that there was greater recall of Opinion-Q items immediately-after than at delayed testing. The I x S interaction was examined to test the source predictions on learning noted earlier in the immediate-after analysis of opinion-Q scores. Two orthogonal comparisons of the Initial Opinion x Source interaction suggested a reversal of the source pattern between the Ext and Mod Ss ((Hi + Lo) vs Anon x Initial Opinion, $F = 5.23$, 1/160 df, $p < .025$; Hi vs Lo x Initial Opinion, n.s.). Specifically, it appears that among the Ext Ss, the Hi and Lo source groups recalled more opinion-Q items than did the Anon source group (in order of recall: Hi> Lo> Anon), while among the Mod Ss, the Anon source group recalled more opinion-Q items than did the named source groups (in order of recall: Anon> Lo> Hi). In other words, among the Ext Ss, the greatest effect on recall was in the named source conditions, while among the Mod Ss, the greatest effect on recall was in the Anon source condition. Therefore, as in the immediate-after data, the source predictions concerning better recall for the Anon source groups than for the

named source groups were supported for the Mod Ss, but not for the Ext Ss.

Retention (recall) over time, 1PT condition. The mean immediate-after and delayed test opinion-Q scores of the 1PT Ss are presented in Table 30. Repeated measures analysis of variance (Tables 31, 32) yielded main effects of Exposures ($p < .01$), and Measures ($p < .01$). The I x S interaction found in the immediate-after data and in the analysis of the 2PT data over time did not appear in this analysis, nor was there any other effect of Source. Thus, it might be suggested that the "source effect" found in the immediate-after data was not maintained over time in the 1PT condition. The main effect of Exposures followed the pattern of all the previous analyses. Orthogonal decomposition of the Exposures main effect (Table 32) indicates that 3-exposure Ss recalled more opinion-Q items than either the 1- or 2-exposure Ss (3 vs (1 + 2) exposures, $F = 3.96$, 1/166 df, $p < .05$; 1 vs 2 exposures, n.s.). The pattern of means for the Measures main effect, as in all other analyses, indicates that there was greater recall immediately after than at delayed testing.

Comparisons with control. By Dunnetts test, immediately after exposure to the communication, at each exposure level, and also at each source level, experimental Ss recalled more opinion-Q items than the corresponding control Ss (all p values $< .05$, 1-tail). However, at delayed testing, only the Ext Ss in the 1PT - 3-exposure groups recalled more opinion-Q items than the control Ss ($p < .05$, 1-tail).

In summary, it can be stated that all of the analyses of the Opinion-Q data yielded main effects of Exposures; hence, as predicted, there was greater recall in the multiple exposure than in the single exposure conditions. As might be expected, recall diminished over time. Source credibility

interacted with initial opinion in the immediate-after opinion-Q analysis such that there was support for the predicted source pattern (Anon >Named) among the Mod Ss, but not among the Ext Ss. Among the Ext Ss, the "source effect" was more like the one in the attitude data (Hi >Lo >Anon). The I x S interaction was maintained over time in the 2PT condition, but not in the 1PT condition.

Relationship between Fact, Opinion-Q, Attitude, and Self-Rating

The correlation matrices of Self-rating, Attitude scores and Fact and Opinion-Q scores for the 2PT and 1PT Ss are presented in Table 33.

In the 2PT condition, the relationship of Fact scores with attitude is different from the relationship of Opinion-Q scores with attitude. Fact item scores were negatively related to attitude scores, but only at delayed testing ($p < .005$, df = 170 for all correlations). The more favorable the delayed test attitude (toward the communicator's position), the fewer delayed fact items recalled. On the other hand, opinion-Q scores were positively related to attitude scores both immediately after ($p < .005$) and at delayed testing ($p < .025$). The more favorable the attitude score, the more opinion-Q items recalled.

In the 1PT condition, the relationship between both delayed fact scores with attitude scores ($p < .025$) and delayed opinion-Q scores with delayed attitude scores ($p < .005$) is positive. At delayed testing (the only attitude measure taken in the 1PT condition), the more favorable the attitude (toward the communicator's position), the more delayed fact and delayed opinion-Q items recalled.

Action Intention

Inspection of the correlation matrix of the control group responses to the action intention questions (Table 34) indicated that the three responses were highly intercorrelated. Therefore the three responses were summed into a composite Action Intention score. Combining the three scales (0 = no; 1 = don't know; 2 = yes) resulted in a 0-6 scale of willingness to engage in pro-ESP actions (the less willing to engage in pro-ESP actions, the more favorable to the communicator's point of view). The mean Action Intention scores of the experimental Ss are presented in Table 35. Analysis of variance (Table 36) yielded a main effect of Initial Opinion ($F = 40.46$, 2/332 df, $p < .001$) and a T x I x E x S interaction ($F = 2.69$, 4/332 df, $p < .05$). The Initial Opinion means were on the "unwilling" side of the scale; the Mod Ss ($\bar{X} = 1.44$) were more unwilling to engage in pro-ESP actions (i.e. actions opposed to the direction of the communication) than were the Ext Ss ($\bar{X} = 2.80$).
The T x I x E x S interaction can best be looked at as different IES patterns in the 2PT and 1PT conditions. Inspection of the 1PT means indicates that, for the most part, the groups follow the pattern indicated by the main effect of Initial Opinion (i.e. Exts less unwilling than the Mods) with little change over exposures. (None of the analyses of the simple effects of exposure reach significance.) For the 2PT condition, analysis of the simple effects of exposure for the Ext-Hi source groups ($F = 5.21$, 2/332 df, $p < .025$) and the Mod-Hi source groups (n.s.) indicates that, among the Ext Ss, the Hi-1-exposure group was more unwilling to engage in actions than were the Hi-2 and Hi-3-exposure groups.

Thus, the 4-way interaction may be interpreted as due largely to this one extremely deviant cell (Ext - 1 Exposure - Hi source group, 2PT condition).

Comparisons with control. Comparisons with appropriate control groups did not reach significance.

Author Evaluation

The author evaluation measure was made up of six semantic scales. All experimental Ss responded to this measure immediately after the communication session (the 2PT Ss, following the attitude measure; the 1PT Ss, following the final quiz), and also on the delayed posttest questionnaire. Control Ss responded to the measure after reading one of the source descriptions used in the communication. There was a separate control group for each named source condition, in order to eliminate any "context" or comparison effects in the source evaluations.[6] The correlation matrix of the control group ratings of the six semantic scales is presented in Table 37. Since the ratings were highly interrelated, the total of the six ratings (Author Evaluation Score) was used in the analyses that follow.

Author evaluation: immediate-after. The mean immediate-after author evaluation scores of the experimental groups are presented in Table 38. ANOVA (Table 39, 40) yielded a marginal Exposures main effect ($p < .10$), a marginal Tests x Exposures interaction ($p < .10$) and an Initial Opinion x Source interaction (p .06). Orthogonal decomposition of the I x S interaction (Hi vs Lo x I, n.s.; (Hi + Lo) vs Anon x I, $F = 5.36$, 1/335 df, $p < .025$) supports the interpretation that there was a reversal of the named source vs. Anon source pattern between the Ext

and Mod Ss. By inspection, it is evident that, while the named sources were evaluated more favorably than the Anon source by the Ext Ss, there is a "source effect" in the evaluation by the Mod Ss. That is, the Mod-Hi source evaluation is at the Anon source level and the Lo source evaluation is less favorable than the Hi source evaluation (simple effects Ext: Hi + Lo vs Anon, $F = 3.57$, 1/335 df, $p < .10$; Mod: Hi vs Lo, $F = 3.72$, 1/335 df, $p < .10$). Thus, the pattern of a "source effect" for the Mod but not for the Ext Ss is the reverse of what might be expected by the source derogation rationale which led to the statement of Hypothesis 4. Orthogonal decomposition of the Exposures main effect suggests that the source evaluations were more favorable in the multiple exposure conditions than in the single exposure condition (3 vs 2, n.s.; 3 + 2 vs 1 exposure, $F = 5.97$, 1/335 df, $p < .025$). Two orthogonal comparisons of the Tests x Exposures interaction indicate that the increase in favorability from single to multiple exposures was greater in the 1PT condition than in the 2PT condition (3 vs 2 exposures x T, n.s; (3 + 2) vs 1 exposure x T, $F = 7.20$, 1/335 df, $p < .01$).

Immediate-after author evaluation: comparison with control. Comparisons with appropriate control groups were performed for the combined Hi source and combined Lo source groups in both the 2PT and 1PT conditions. By Dunnetts test, the Hi source was evaluated less favorably by the experimental groups than by the control groups ($p < .05$) among the Ext Ss (in the 2PT and also in the 1PT condition). There was no difference between experimental and control evaluations of the Hi source among the Mod Ss. The Lo source was evaluated more favorably by the experimental groups

than by the control groups (all p values < .05) in both the 2PT and 1PT conditions. This difference occurred among both the Ext and the Mod Ss. Thus, while the Ext Ss reduced their evaluation of the Hi source and enhanced their evaluation of the Lo source after exposure to the communication, the Mod Ss only enhanced their evaluation of the Lo source, but did not change their evaluation of the Hi source. The enhancement of the evaluation of the Lo source, and its relation to predictions concerning "discounting" and source derogation, will be treated in the discussion of Hypotheses 3 and 4.

Author evaluation over time. At delayed testing, Ss were asked again to evaluate the source of the communication. Most Ss did so whether or not they had responded to the source recall questions immediately preceeding. However, 65 Ss spread approximately evenly across conditions, failed to respond at this time. In view of this sample loss and the questionable meaning of evaluations by Ss who did not recall the author, the significance of these data is moot. The results and analyses are contained in Appendix D (Tables 1, 2, 3).

Strength

Ss in all communication conditions were asked to rate how strong a case the speaker had made for his point of view on a 7-point graphic scale (1 = extremely strong; 4 = neither-nor; 7 = extremely weak). The mean "strength" responses are presented in Appendix E (Table 1). Analysis of variance of these ratings yielded no significant results (Appendix E, Table 2). The overall mean rating (3.30) was on the "strong" side of the scale.

Source Recall

At delayed testing, Ss were asked to respond to an open-ended question concerning the name or description of the source of the communication. The responses were coded as correct ("Yes") if the name or description of the source was given (e.g. "a gypsy"; "from some university"; "a guy with a criminal record"). All other responses (e.g. wrong source; "don't remember"; "didn't read a communication"; or no response) were coded as incorrect ("No"). The per cent of Ss in each Hi or Lo source experimental group who did and did not recall the source description is presented in Table 41. Overall, 18.29% of the Ss in the named source conditions recalled the source of the communication.

Chi square analysis of the overall Exposures pattern (Table 42) reveals that more Ss in the 3-exposure condition recalled the source correctly than did the Ss in the other two exposure conditions (X^2 = 6.97, /2 df, $p < .05$). Analysis of the overall source pattern (Table 43) indicated that, although more Ss recalled their source in the Lo source condition than in the Hi source condition, the difference did not reach significance (X^2 = 2.18, /1 df, $p < .20$). Although the overall percentage of Ss who recalled the source was relatively small, it is of interest to note that, among those who did recall, there was greater recall in the multiple than in the single exposure conditions, as was suggested in postulating Hypothesis 3.

Author Position

At the time of delayed testing, all Ss were asked to recall the source's position on the issue on an 11-point scale. The mean responses

of all experimental Ss who responded to this question are presented in Table 44. Analysis of variance (Table 45) yielded main effects of Initial Opinion ($p < .001$), Exposures ($p < .06$), and Source ($p < .05$). Inspection of the means of the I main effect (Table 46) reveals that the Ext Ss recalled the author's position as more opposed to their own than did the Mod Ss. Thus it might be stated, with some caution, that a kind of assimilation-contrast effect occurred, as discussed in the arguments leading to Hypothesis 4.

Orthogonal decomposition of the Source main effect ((Hi + Lo) vs Anon, n.s; Hi vs Lo, $F = 6.00$, 1/271 df, $p < .025$) indicates that the Hi source (professor) was recalled as more opposed to a belief in ESP than was the Lo source (gypsy). Orthogonal comparisons of the Exposure means (3 vs 2 exposures, n.s; (3 + 2) vs 1 exposure, $F = 5.66$, 1/271 df, $p < .025$) suggest that remembrance of the author's position was affected by number of exposures to the communication. Specifically, the data show that Ss in the 1-exposure condition rated their sources closer to the "neutral" point on the scale, in comparison with Ss in the 3- and 2-exposure conditions who placed their sources closer to the disbelieve end of the scale.

TABLE 1

Mean Immediate-after and Delayed test Attitude Scores #
2PT condition

I	Source	3 exposures	2 exposures	1 exposure	Control
Immediate-after					
Ext					10.730 (11)
	Hi	15.750 (8)*	11.400 (10)	17.000 (9)	
	Lo	13.000 (7)	13.600 (10)	10.800 (10)	
	Anon	13.250 (8)	12.800 (10)	13.333 (9)	
Mod					16.180 (11)
	Hi	18.066 (15)	16.363 (11)	18.400 (10)	
	Lo	17.333 (12)	18.400 (10)	17.111 (9)	
	Anon	19.909 (11)	16.250 (12)	16.272 (11)	
Delayed Test					
Ext					10.555
	Hi	11.000 (*)	9.400	13.000	
	Lo	9.285	10.700	9.900	
	Anon	11.625	11.500	9.777	
Mod					14.640
	Hi	13.866	15.363	14.000	
	Lo	12.750	14.000	13.555	
	Anon	15.909	15.166	13.636	

* Cell N (Omitted in Delayed test table portion)

The higher the mean the more favorable to the communicator's position

TABLE 2

I x E x S Analysis of Variance of
Immediate-after Attitude Scores of
2PT condition

Source	df	MS	F	p
Initial Opinion (Ext vs Mod)	1	754.181	32.964	<.001
Exposures (1 vs 2 vs 3)	2	29.554		
Source (Hi vs Lo vs Anon)	2	20.335		
I E	2	3.724		
I S	2	19.259		
E S	4	47.704	2.085	<.085
I E S	4	19.159		
Within SS (error)	164	22.879		

$\overline{nh} = 9.824$

TABLE 3

Means of Significant Main effects and Interaction effects in ANOVA of Immediate-after Attitude Scores (Table 2) 2PT condition

Exposure x Source Interaction

	3 exposure	2 exposure	1 exposure	Control *
Hi	16.908	13.882	17.700	13.455
Lo	15.166	16.000	13.956	
Anon	16.580	14.525	14.802	

Initial Opinion

Ext	13.437
Mod	17.567

* Control group data added for comparison purposes only

TABLE 4

Repeated Measures Analysis of Variance of
Immediate-after vs Delayed Attitude Scores
2PT condition

Source	df	MS	F	p
Between subjects	181			
Initial opinion (Ext vs Mod)	1	1307.901	37.301	<.001
Exposures (1 vs 2 vs 3)	2	10.111		
Source (Hi vs Lo vs Anon)	2	37.089	1.058	
I E	2	10.452		
I S	2	13.061		
E S	4	53.951	1.539	
I E S	4	26.224		
Subj w. groups (error between)	164	35.064		
Within subjects	182			
Measures (Immediate vs Delay)	1	813.510	95.273	<.001
I M	1	7.314		
E M	2	21.737	2.546	<.10
S M	2	9.905	1.160	
I E M	2	1.234		
I S M	2	7.855		
E S M	4	12.472	1.461	
I E S M	4	4.717		
M x subj w. groups (error within)	164	8.539		

$\overline{nh} = 9.864$

TABLE 5

Means of Significant Main effects and Interaction effects in Repeated measures ANOVA of Immediate-after vs Delayed test Attitude Scores of 2PT condition (Table 4)

Initial Opinion

Ext	12.060
Mod	15.410

Measures

Immediate-after	15.020
Delayed test	12.470

Exposures x Measures Interaction

	3 exposure	2 exposure	1 exposure	control *
Immediate-after	16.22	14.80	15.47	13.45
Delayed test	12.41	12.69	12.31	12.59

* Control group means added for comparison purposes only

TABLE 6

Mean Attitude Scores of # 2PT Immediate-After vs 1PT Delayed Test

I	Source	3 exposures	2 exposures	1 exposure	Control
2PT condition Immediate-after scores					
Ext					10.730 (11)
	Hi	15.750 (8)*	11.400 (10)	17.000 (9)	
	Lo	13.000 (7)	13.600 (10)	10.800 (10)	
	Anon	13.250 (8)	12.800 (10)	13.333 (9)	
Mod					16.180 (11)
	Hi	18.066 (15)	16.364 (11)	18.400 (10)	
	Lo	17.333 (12)	18.400 (10)	17.111 (9)	
	Anon	19.909 (11)	16.250 (12)	16.273 (11)	
1PT condition Delayed test scores					
Ext					7.75 (8)
	Hi	11.615 (13)	11.300 (10)	11.222 (9)	
	Lo	11.875 (8)	13.286 (7)	10.333 (12)	
	Anon	11.111 (9)	11.833 (6)	8.714 (14)	
Mod					14.76 (17)
	Hi	9.888 (9)	14.857 (7)	16.111 (9)	
	Lo	14.950 (20)	16.900 (10)	13.909 (11)	
	Anon	16.800 (11)	18.182 (11)	16.555 (9)	

* Cell N

The higher the score the more favorable to the communicator's position

TABLE 7

T x I x E x S Analysis of Variance of
2PT Immediate-after vs 1PT Delayed Attitude Scores

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	424.272	19.191	<.001
Initial Opinion (Ext vs Mod)	1	1483.320	67.0951	<.001
Exposures (1 vs 2 vs 3)	2	6.255		
Source (Hi vs Lo vs Anon)	2	2.948		
T I	1	0.026		
T E	2	75.339	3.408	<.05
T S	2	47.039	2.128	
I E	2	11.438		
I S	2	62.996	2.850	<.06
E S	4	66.988	3.030	<.025
T I E	2	28.874		
T I S	2	31.373		
T E S	4	12.714		
I E S	4	18.554		
T I E S	4	15.084		
Within SS (error)	335	22.108		

$\overline{nh}$ = 9.742

TABLE 8

Means of Significant Main effects and Interaction effects in ANOVA of 2PT Immediate-after vs 1PT Delayed test Attitude Scores (Table 7)

Tests

2PT	15.69
1PT	13.39

Initial Opinion

Ext	12.19
Mod	16.39

Tests x Exposure Interaction

	3 exposure	2 exposure	1 exposure	control*
2PT	16.74	14.87	15.48	13.45
1PT	13.32	14.71	12.41	12.52

Initial Opinion x Source Interaction

	Hi	Lo	Anon	Control*
Ext	13.048	12.149	11.840	9.475
Mod	15.614	16.434	17.328	15.318

Exposure x Source Interaction

	3 exposure	2 exposure	1 exposure	Control*
Hi	13.830	13.480	15.683	
Lo	14.290	15.546	13.038	12.96 (overall)
Anon	15.268	14.766	13.719	

* Control group means added for comparison purposes only

TABLE 9

Mean Immediate-after and Delayed Attitude scores of 2PT condition- One exposure groups

Immediate-after	Hi	Lo	Anon
Ext	17.000 (9)*	10.800 (10)	13.333 (9)
Mod	18.400 (10)	17.111 (9)	16.272 (11)
Delayed test			
Ext	13.000*	9.900	9.777
Mod	14.000	13.555	13.636

* Cell N (Omitted in Delayed test table portion)

TABLE 10

I x S Analysis of Variance of
Immediate-after Attitude Scores of
One Exposure Groups, 2PT condition

Source	df	MS	F	p
Initial Opinion (Ext vs Mod)	1	190.436	9.951	<.002
Source (Hi vs Lo vs Anon)	2	73.560	3.844	<.027
I S	2	29.926		
Within SS (error)	52	19.135		

TABLE 11

Repeated Measures Analysis of Variance of Immediate-after vs Delayed Attitude Scores of 2PT Condition One exposure Groups

Source	df	MS	F	p
Between subjects	57			
Initial Opinion (Ext vs Mod)	1	294.164	10.980	<.01
Source (Hi vs Lo vs Anon)	2	85.078	3.176	=.05
I S	2	34.706	1.295	
Subj w. groups (error between)	52	26.791		
Within subjects	58			
Measures (Immediate vs Delay)	1	290.578	37.112	<.01
I M	1	3.678		
S M	2	9.401	1.201	
I S M	2	7.844	1.002	
M x subj w. groups (error within)	52	7.830		

TABLE 12

Means of Significant Main effects and Interaction effects in Repeated measures ANOVA of Immediate-after vs Delayed test Attitude Scores of 2PT condition (Table 11) One exposure Groups

Main effect of Initial Opinion

Ext	12.23
Mod	15.50

Main effect of Source

Hi	Lo	Anon
15.600	12.842	13.255

Main effect of Measures

Immediate-after	15.486
Delayed test	12.312

TABLE 13

Mean Attitude Scores of #
2PT Immediate-after vs 1PT Delayed Test
One exposure Groups

	Hi	Lo	Anon
	2PT condition		
Ext	17.000 (9) *	10.800 (10)	13.333 (9)
Mod	18.400 (10)	17.111 (9)	16.272 (11)
	1PT condition		
Ext	11.222 (9)	10.333 (12)	8.714 (14)
Mod	16.111 (9)	13.909 (11)	16.555 (9)

* Cell N

The higher the mean the more favorable to the communicator's position

TABLE 14

T x I x S Analysis of Variance of
2PT Immediate-after vs 1PT Delayed Attitude Scores
One exposure Groups

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	214.650	12.986	<.01
Initial Opinion (Ext vs Mod)	1	603.890	36.536	<.01
Source (Hi vs Lo vs Anon)	2	75.242	4.552	<.05
T I	1	26.601		
T S	2	14.012		
I S	2	14.104		
T I S	2	41.158	2.490	<.10
Within SS (error)	110	16.529		

TABLE 15

Means of Significant Main effects in ANOVA of Attitude Scores of 2PT Immediate-after vs 1PT Delayed test (Table 14)
One exposure Groups

Tests

2PT	15.48
1PT	12.41

Initial Opinion

Ext	11.56
Mod	16.34

Source

Hi	Lo	Anon	control*
15.683	13.038	13.719	12.950

* Control group means added for comparison purposes only

TABLE 16

Mean Immediate-after Fact Item Scores#

I	Source	3 exposures	2 exposures	1 exposure	Control
2PT condition					
Ext					0.730 (11)
	Hi	2.875 (8)*	2.300 (10)	1.500 (8)	
	Lo	2.286 (7)	2.400 (10)	2.375 (8)	
	Anon	2.250 (8)	2.300 (10)	2.000 (9)	
Mod					0.800 (10)
	Hi	2.800 (15)	2.727 (11)	1.778 (9)	
	Lo	2.250 (12)	2.200 (10)	1.778 (9)	
	Anon	2.455 (11)	2.500 (12)	2.091 (11)	
1PT condition					
Ext					0.880 (8)
	Hi	3.692 (13)	2.625 (8)	2.667 (9)	
	Lo	3.000 (8)	2.143 (7)	1.917 (12)	
	Anon	2.500 (8)	2.667 (6)	1.929 (14)	
Mod					0.380 (16)
	Hi	2.667 (9)	1.667 (6)	1.889 (9)	
	Lo	2.850 (20)	2.300 (10)	1.727 (11)	
	Anon	2.429 (14)	1.636 (11)	2.000 (9)	

* Cell N

Mean number correct out of possible 5 items

TABLE 17

T x I x E x S Analysis of Variance of
Immediate-after Fact Item Scores

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	0.543		
Initial Opinion (Ext vs Mod)	1	3.555	2.597	
Exposures (1 vs 2 vs 3)	2	13.929	10.178	<.01
Source (Hi vs Lo vs Anon)	2	1.308	.	
T I	1	4.775	3.489	
T E	2	2.576		
T S	2	0.560		
I E	2	0.019		
I S	2	0.528		
E S	4	1.167		
T I E	2	0.502		
T I S	2	3.221	2.353	
T E S	4	1.233		
I E S	4	0.686		
T I E S	4	0.388		
Within SS (error)	326	1.369		

$\underline{\bar{n}h} = 9.442$

TABLE 18

Mean Immediate-after and Delayed Test Fact Item Scores #
2PT condition

I	Source	3 exposures	2 exposures	1 exposure	Control
Immediate-after					
Ext					0.730 (11)
	Hi	2.875 (8) *	2.300 (10)	1.500 (8)	
	Lo	2.286 (7)	2.400 (10)	2.375 (8)	
	Anon	2.250 (8)	2.300 (10)	2.000 (9)	
Mod					0.800 (10)
	Hi	2.800 (15)	2.727 (11)	1.778 (9)	
	Lo	2.250 (12)	2.200 (10)	1.778 (9)	
	Anon	2.455 (11)	2.500 (12)	2.091 (11)	
Delayed Test					
Ext					1.090
	Hi	2.125 *	1.600	1.000	
	Lo	1.286	2.100	1.500	
	Anon	2.250	1.500	2.000	
Mod					0.800
	Hi	1.600	1.455	1.333	
	Lo	1.833	1.000	1.000	
	Anon	1.727	1.583	1.273	

* Cell N (Omitted in Delayed test table portion)

Mean number correct out of possible 5 items

TABLE 19

Repeated Measures Analysis of Variance of
Immediate-after vs Delayed Fact Item Scores
2PT condition

Source	df	MS	F	p
Between subjects	177			
Initial opinion (Ext vs Mod)	1	1.358		
Exposures (1 vs 2 vs 3)	2	7.691	3.702	<.05
Source (Hi vs Lo vs Anon)	2	0.738		
I E	2	0.105		
I S	2	0.952		
E S	4	1.523		
I E S	4	1.854		
Subj w. groups (error between)	160	2.078		
Within subjects	178			
Measures (Immediate vs Delay)	1	42.833	64.113	<.01
I M	1	2.162	3.236	<.10
E M	2	0.641		
S M	2	0.584		
I E M	2	0.241		
I S M	2	0.410		
E S M	4	0.466		
I E S M	4	0.870		
M x subj w. groups (error within)	160	0.668		

$\overline{nh} = 9.563$

TABLE 20

Means of Significant Main effects in Repeated measures ANOVA of Immediate-after vs Delayed test Fact Item Scores of 2PT condition (Table 19)

Exposure	3 exposure	2 exposure	1 exposure
	2.145	1.972	1.636

Measures		
	Immediate-after	2.270
	Delayed test	1.565

TABLE 21

Mean Immediate-after and Delayed test Fact Item Scores #
IPT Condition

I	Source	3 exposures	2 exposures	1 exposure	Control
Immediate-after					
Ext					0.880 (8)
	Hi	3.692 (13)	2.625 (8)	2.667 (9)	
	Lo	3.000 (8)	2.143 (7)	1.917 (12)	
	Anon	2.500 (8)	2.667 (6)	1.929 (14)	
Mod					0.380 (16)
	Hi	2.667 (9)	1.667 (6)	1.889 (9)	
	Lo	2.850 (20)	2.300 (10)	1.727 (11)	
	Anon	2.429 (14)	1.636 (11)	2.000 (9)	
Delayed test					
Ext					1.250 (8)
	Hi	2.615 *	1.250	2.000	
	Lo	2.250	1.571	1.583	
	Anon	1.375	2.000	1.500	
Mod					0.500 (16)
	Hi	2.333	1.333	1.444	
	Lo	1.950	1.600	0.818	
	Anon	1.786	1.091	1.667	

* Cell N (Omitted in Delayed test table portion)

\# Mean Number correct out of possible 5 items

TABLE 22

Repeated Measures Analysis of Variance of
Immediate-after vs Delayed Fact Item Scores
IPT condition

Source	df	MS	F	p
Between subjects	183			
Initial opinion (Ext vs Mod)	1	9.623	4.822	<.05
Exposures (1 vs 2 vs 3)	2	16.412	8.224	<.01
Source (Hi vs Lo vs Anon)	2	2.638		
I E	2	0.289		
I S	2	1.291		
E S	4	3.031	1.519	
I E S	4	2.224		
Subj w. groups (error between)	166	1.996		
Within subjects	184			
Measures (Immediate vs Delay)	1	38.136	51.758	<.01
I M	1	0.896		
E M	2	0.587		
S M	2	0.059		
I E M	2	0.441		
I S M	2	1.588	2.156	
E S M	4	0.166		
I E S M	4	0.110		
M x subj w. groups (error within)	166	0.737		

$\overline{nh} = 9.324$

TABLE 23

Means of Significant Main effects and Interaction effects in Repeated measures ANOVA of Immediate-after vs Delayed test Fact Item Scores of IPT condition (Table 22)

Initial Opinion

Ext	2.182
Mod	1.844

Exposure

3 exposure	2 exposure	1 exposure
2.454	1.824	1.762

Measures	Immediate-after	2.350
	Delayed test	1.676

TABLE 24

Mean Immediate-after Opinion-Q Item Scores #

I	Source	3 exposures	2 exposures	1 exposure	Control
2PT condition					
Ext					0.450 (11)
	Hi	2.875 (8) *	2.700 (10)	1.625 (8)	
	Lo	1.714 (7)	1.900 (10)	1.500 (8)	
	Anon	2.250 (8)	1.900 (10)	0.889 (9)	
Mod					0.800 (10)
	Hi	1.867 (15)	2.364 (11)	2.222 (9)	
	Lo	2.000 (12)	3.200 (10)	1.111 (9)	
	Anon	2.727 (11)	2.000 (12)	1.909 (11)	
1PT Condition					
Ext					0.380 (8)
	Hi	2.615 (13)	1.875 (8)	2.222 (9)	
	Lo	2.375 (8)	1.857 (7)	1.417 (12)	
	Anon	2.250 (8)	1.833 (6)	1.929 (14)	
Mod					0.750 (10)
	Hi	2.111 (9)	2.333 (6)	1.444 (9)	
	Lo	2.650 (20)	1.900 (10)	1.818 (11)	
	Anon	2.071 (14)	2.545 (11)	1.889 (9)	

* Cell N

Mean number correct out of possible 4 items

TABLE 25

T x I x E x S Analysis of Variance of
Immediate-after Opinion-Q Scores

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	0.038		
Initial Opinion (Ext vs Mod)	1	1.557		
Exposures (1 vs 2 vs 3)	2	13.022	12.772	<.01
Source (Hi vs Lo vs Anon)	2	1.668		
T I	1	0.720		
T E	2	2.146		
T S	2	0.832		
I E	2	1.689		
I S	2	3.358	3.294	<.05
E S	4	0.454		
T I E	2	0.723		
T I S	2	0.211		
T E S	4	2.262		
I E S	4	0.724		
T I E S	4	3.430	3.365	<.02
Within SS (error)	326	1.020		

$\overline{nh}$ = 9.442

TABLE 26

Means of Significant Main effects and Interaction effects in ANOVA of Immediate-after Opinion-Q Item Scores (Table 25)

Exposure

3 exposure	2 exposure	1 exposure
2.292	2.200	1.665

Initial Opinion x Source

	Hi	Lo	Anon
Ext	2.357	1.769	1.836
Mod	2.034	2.194	2.191

T I E S Interaction (See Table 24)

TABLE 27

Mean Immediate-after and Delayed test Opinion - Q Scores #
2PT Condition

I	Source	3 exposures	2 exposures	1 exposure	Control
Immediate-after					
Ext		*			0.45 (11)
	Hi	2.875 (8)	2.700 (10)	1.625 (8)	
	Lo	1.714 (7)	1.900 (10)	1.500 (8)	
	Anon	2.250 (8)	1.900 (10)	0.889 (9)	
Mod					0.800 (10)
	Hi	1.867 (15)	2.364 (11)	2.222 (9)	
	Lo	2.000 (12)	3.200 (10)	1.111 (9)	
	Anon	2.727 (11)	2.000 (12)	1.909 (11)	
Delayed test					
Ext		*			1.090
	Hi	1.500	1.700	1.125	
	Lo	1.429	1.400	0.750	
	Anon	1.000	1.000	1.111	
Mod					0.800
	Hi	1.133	1.545	0.667	
	Lo	1.500	1.400	0.444	
	Anon	1.909	1.667	1.273	

* Cell N (Omitted in Delayed test table portion)

\# Mean number correct out of possible 4 items

TABLE 28

Repeated Measures Analysis of Variance of
Immediate-after vs Delayed Opinion Item Scores
2PT condition

Source	df	MS	F	p
Between subjects	177			
Initial opinion (Ext vs Mod)	1	1.753	1.244	
Exposures (1 vs 2 vs 3)	2	15.957	11.324	<.01
Source (Hi vs Lo vs Anon)	2	1.773		
I E	2	0.324		
I S	2	5.113	3.629	<.05
E S	4	1.662		
I E S	4	1.304		
Subj w. groups (error between)	160	1.409		
Within subjects	178			
Measures (Immediate vs Delay)	1	53.562	81.039	<.01
I M	1	0.620		
E M	2	0.461		
S M	2	1.058	1.600	
I E M	2	1.440	2.179	
I S M	2	0.534		
E S M	4	1.307	1.977	<.10
I E S M	4	1.575	2.383	<.06
M x subj w. groups (error within)	160	0.661		

$\overline{nh}$ = 9.563

TABLE 29

Means of Significant Main effects and Interaction effects in Repeated measures ANOVA of Immediate-after vs Delayed test Opinion-Q Item Scores of 2PT condition (Table 28)

Exposures

3 exposure	2 exposure	1 exposure
1.825	1.899	1.219

Initial Opinion x Source Interaction

	Hi	Lo	Anon
Ext	1.921	1.449	1.358
Mod	1.633	1.609	1.914

Measures

Immediate-after	2.042
Delayed test	1.253

TABLE 30

Mean Immediate-after and Delayed test Opinion-Q Scores
IPT condition

I Source	3 exposures	2 exposures	1 exposure	Control
Immediate-after				
Ext				0.380 (8)
Hi	2.615 (13)	1.875 (8)	2.222 (9)	
Lo	2.375 (8)	1.875 (7)	1.417 (12)	
Anon	2.250 (8)	1.833 (6)	1.929 (14)	
Mod				0.750 (16)
Hi	2.111 (9)	2.333 (6)	1.444 (9)	
Lo	2.650 (20)	1.900 (10)	1.818 (11)	
Anon	2.071 (14)	2.545 (11)	1.889 (9)	
Delayed Test				
Ext	*			1.250
Hi	1.923	1.250	1.778	
Lo	2.375	1.714	1.083	
Anon	1.500	1.333	0.857	
Mod				0.500
Hi	1.333	1.500	1.556	
Lo	1.850	1.300	1.182	
Anon	1.214	1.636	1.222	

* Cell N

\# Mean number correct out of possible 4 items

TABLE 31

Repeated Measures Analysis of Variance of
Immediate-after vs Delayed Opinion Item Scores
IPT condition

Source	df	MS	F	p
Between subjects	183			
Initial opinion (Ext vs Mod)	1	0.100		
Exposures (1 vs 2 vs 3)	2	6.713	4.996	<.01
Source (Hi vs Lo vs Anon)	2	0.578		
I E	2	1.944	1.447	
I S	2	1.001		
E S	4	1.955	1.455	
I E S	4	1.125		
Subj w. groups (error between)	166	1.344		
Within subjects	184			
Measures (Immediate vs Delay)	1	28.706	38.684	<.01
I M	1	0.521		
E M	2	0.145		
S M	2	1.015	1.368	
I E M	2	0.737		
I S M	2	0.715		
E S M	4	0.472		
I E S M	4	0.101		
M x subj w. groups (error within)	166	0.742		

$\overline{nh} = 9.324$

TABLE 32

Means of Significant Main effects in Repeated measures ANOVA of Immediate-after vs Delayed test Opinion-Q item Scores of IPT condition (Table 31)

Exposures

3 exposure	2 exposure	1 exposure
2.022	1.756	1.533

Measures

Immediate-after	2.063
Delayed test	1.478

TABLE 33

Correlation between
Fact Scores, Opinion-Q Scores, Attitude Scores, and Self Rating
for all experimental Ss combined, in 2PT and 1PT conditions *

2PT condition	Immediate / Fact	/ delayed / opin	/ Fact	/ Opin	/ SR	/ Attitude immed	/ delay
Immediate-after Fact	.23	.51	.19	-.02	.01	.10	
Immediate-after Opinion-Q		.05	.40	.12	.23	.16	
Delayed Fact			.17	-.23	-.26	-.28	
Delayed Opinion-Q				.07	.23	.30	
Self Rating (SR)					.54	.55	
Immediate-after Attitude						.67	
Delayed test Attitude							

1PT condition	Immediate Fact	/Delayed Opin	/ Fact	/ Opin	/ SR	/ Delayed attitude
Immediate-after Fact	.52	.25	.30	-.09	.06	
Immediate-after Opinion-Q		.11	.19	-.08	-.06	
Delayed Fact			.34	.11	.18	
Delayed Opinion-Q				.06	.30	
Self Rating (SR)					.52	
Delayed test Attitude						

* @ 170 df. $r => .15 = p < .025$

$r => .19 = p < .005$

TABLE 34

Intercorrelation of Action Intention Scores with Attitude Scores and SR Control Groups

2PT Condition	SR	Import	Immed Attitude	Actions: Distr	Actions: Convi	Actions: Button	Actions: TOTAL	Delay Attitude
Self Rating (SR)		-.35 *	.65	-.42	-.45	-.30	-.47	.62
Importance			-.60	.10	-.15	.07	.01	-.47
Immediate-after Attitude				-.49	-.36	-.37	-.50	.87
"Distribute"					.54	.57	.86	-.42
"Convince"						.42	.80	-.28
"Wear Button"							.81	-.15
Total Actions								-.35
Delayed Test Attitude								
1PT Condition								
Self Rating (SR)		-.44 **	#	-.34	-.59	-.47	-.54	.58
Importance				.28	.31	.42	.37	-.50
"Distribute"					.74	.67	.92	-.30
"Convince"						.72	.94	-.57
"Wear Button"							.88	-.69
Total Actions								-.61
Delayed Test Attitude								

* 2PT: @ 20df, p <: .05 = .36 ; .01 = .49 ; .005 = .54
** 1PT: @ 22df, p <: .05 = .34 ; .01 = .47 ; .005 = .52

1PT Ss in control group did not respond to the immediate-after attitude measure.

TABLE 35

Mean Total Action Intention Scores #

I	Source	3 exposures	2 exposures	1 exposure	Control
2PT condition					
Ext					3.727 (11)
	Hi	3.500 (8)	3.000 (10)	0.777 (9)	
	Lo	3.666 (6)	2.900 (10)	2.700 (10)	
	Anon	2.000 (8)	3.100 (10)	4.111 (9)	
Mod					1.818 (11)
	Hi	1.266 (15)	1.091 (11)	2.600 (10)	
	Lo	1.250 (12)	0.900 (10)	0.777 (9)	
	Anon	1.500 (10)	1.583 (12)	2.000 (11)	
1PT condition					
Ext					4.125 (8)
	Hi	1.846 (13)	3.500 (10)	2.666 (9)	
	Lo	2.625 (8)	3.148 (7)	3.000 (12)	
	Anon	2.333 (9)	2.833 (6)	2.692 (13)	
Mod					1.500 (16)
	Hi	2.667 (9)	1.714 (7)	1.111 (9)	
	Lo	1.150 (20)	1.400 (10)	1.545 (11)	
	Anon	1.067 (15)	0.909 (11)	1.333 (9)	

* Cell N

\# The higher the score the more willing to engage in actions favorable to a belief in ESP (opposed to the communicator's position)

TABLE 36

T x I x E x S Analysis of Variance of
Total Action Intention Scores

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	0.378		
Initial Opinion (Ext vs Mod)	1	161.156	40.463	<.01
Exposures (1 vs 2 vs 3)	2	0.297		
Source (Hi vs Lo vs Anon)	2	0.094		
T I	1	0.292		
T E	2	1.207		
T S	2	4.565		
I E	2	4.448		
I S	2	7.799	2.006	
E S	4	4.981		
T I E	2	5.913	1.521	
T I S	2	1.057		
T E S	4	2.881		
I E S	4	3.772		
T I E S	4	10.447	2.688	<.05
Within SS (error)	332	3.887		

$\overline{nh}$ = 9.642

TABLE 37

Intercorrelation of Author Evaluation Scales with SR, Attitude Score and Importance *
Combined Control Groups

	SR/	Imp /	Attitude/	K /	My K/	T /	Infl/	Exp/	F /	Tot/
Self Rating (SR)		-.36	.65	.03	.21	.08	.38	.13	.02	.19
Importance			-.60	.04	-.25	-.05	-.20	.19	.07	.12
Immediate-after attitude				.08	.004	.01	.26	.18	-.09	.03
Knowledgeable					.51	.68	.50	.68	.54	.72
My Kind						.67	.63	.55	.75	.76
Trustworthy							.47	.62	.66	.77
Influential								.51	.46	.69
Experienced									.63	.69
Fair										.71
Total Author Evaluation										

* @ 44 df, p <: .05 = .26; .01= .36; .005= .38

TABLE 38

Mean Immediate-after Author Evaluation Scores #

I	Source	3 exposures	2 exposures	1 exposure	Control
2PT condition					
Ext	Hi	19.13 (8) *	22.80 (10)	21.44 (9)	16.67 (3)
	Lo	23.43 (7)	23.20 (10)	25.00 (10)	31.63 (8)
	Anon	27.50 (8)	23.30 (10)	22.22 (9)	
Mod	Hi	22.60 (15)	19.64 (11)	22.50 (10)	18.80 (5)
	Lo	25.67 (12)	21.10 (10)	25.56 (9)	33.40 (5)
	Anon	24.18 (11)	21.33 (12)	23.27 (11)	
1PT condition					
Ext	Hi	21.85 (13)	22.40 (10)	26.44 (9)	11.50 (4)
	Lo	22.25 (8)	22.00 (7)	24.75 (12)	30.25 (4)
	Anon	23.11 (9)	25.33 (6)	28.29 (14)	
Mod	Hi	22.00 (9)	24.43 (7)	20.56 (9)	19.67 (6)
	Lo	23.40 (20)	22.80 (10)	27.64 (11)	32.63 (8)
	Anon	17.93 (15)	20.00 (11)	23.44 (9)	

* Cell N

\# The lower the score the more favorable the evaluation

TABLE 39

T x I x E x S Analysis of Variance of
Immediate-after Author Evaluation Scores

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	6.112		
Initial Opinion (Ext vs Mod)	1	72.750		
Exposures (1 vs 2 vs 3)	2	117.390	2.585	<.10
Source (Hi vs Lo vs Anon)	2	93.135	2.051	
T I	1	39.285		
T E	2	117.923	2.597	<.01
T S	2	40.179		
I E	2	13.883		
I S	2	133.985	2.951	<.06
E S	4	25.843		
T I E	2	50.172		
T I S	2	47.947		
T E S	4	41.878		
I E S	4	31.282		
T I E S	4	32.904		
Within SS (error)	335	45.408		

$\underline{\bar{n}h} = 9.742$

TABLE 40

Means of Significant Main effects and Interaction effects in ANOVA of Immediate-after Author Evaluation Scores (Table 39)

Exposure

	3 exposure	2 exposure	1 exposure
	22.754	22.361	24.259

Tests x Exposure Interaction

	3 exposure	2 exposure	1 exposure
2 PT	23.752	21.895	23.332
1 PT	21.757	22.827	25.197

Initial Opinion x Source Interaction

	Hi	Lo	Anon
Ext	22.343	23.438	24.958
Mod	21.955	24.362	21.692

TABLE 41

Percent of Ss in each Source condition who Correctly (YES) recalled the source of the Communication

		(Ext) NO	YES	N	(Mod) NO	YES	N
2PT condition							
3 Exposure	Hi	87.5	12.5	8	86.7	13.3	15
	Lo	71.4	28.6	7	75.0	25.0	12
2 Exposure	Hi	100.0	-	10	90.9	9.0	11
	Lo	90.0	10.0	10	60.0	40.0	10
1 Exposure	Hi	88.9	11.1	9	70.0	30.0	10
	Lo	90.0	10.0	10	88.9	11.1	9
1PT Condition							
3 Exposure	Hi	76.9	23.1	13	88.9	11.1	9
	Lo	37.5	62.5	8	65.0	35.0	20
2 Exposure	Hi	80.0	20.0	10	100.0	-	7
	Lo	100.0	-	7	90.0	10.0	10
1 Exposure	Hi	88.9	11.1	9	77.8	22.2	9
	Lo	83.3	16.7	12	90.9	9.1	11

TABLE 42

Percent of Ss in each Exposure condition (combined)* who Correctly recalled (YES) the source of the Communication

	NO	YES	N
3 exposure	73.9	26.1	92
2 exposure	87.8	12.2	74
1 exposure	85.0	15.0	80

(Chi Square = 6.19/2 df, $p < .05$)

* Combined across Tests, Initial Opinion, and Source

TABLE 43

Percent of Ss in each Source condition (combined)* who Correctly recalled (YES) the source of the Communication

	NO	YES	N
Hi	85.8	14.2	120
Lo	77.8	22.2	126
Total	81.71	18.29	246

(Chi Square = 2.18 / 1df, p = n.s.)

* Combined across Tests, Initial Opinion and Exposure

TABLE 44

Mean Author's Position Ratings #

I	Source	3 exposures	2 exposures	1 exposure	Control
2PT condition					
Ext					
	Hi	8.833 (6)*	7.875 (8)	8.333 (6)	
	Lo	7.800 (5)	6.888 (9)	8.857 (7)	
	Anon	9.375 (8)	8.888 (9)	6.833 (6)	
Mod					
	Hi	8.357 (14)	9.000 (9)	7.400 (5)	
	Lo	6.400 (10)	5.700 (10)	3.714 (7)	
	Anon	7.888 (9)	7.917 (12)	6.500 (8)	
1PT condition					
Ext					
	Hi	8.250 (12)	8.666 (6)	7.600 (5)	
	Lo	6.143 (7)	9.286 (7)	6.888 (9)	
	Anon	6.375 (8)	8.333 (6)	8.364 (11)	
Mod					
	Hi	7.875 (8)	7.400 (5)	5.000 (7)	
	Lo	7.526 (19)	6.714 (7)	4.273 (11)	
	Anon	7.357 (14)	7.000 (10)	7.143 (7)	

* Cell N

\# Scale: 1= believe ; 6= neither-nor ; 11= disbelieve (in ESP)

TABLE 45

T x I x E x S Analysis of Variance of
Author Position Ratings

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	7.391		
Initial Opinion (Ext vs Mod)	1	94.010	8.587	<.01
Exposures (1 vs 2 vs 3)	2	32.953	3.010	<.06
Source (Hi vs Lo vs Anon)	2	38.935	3.556	<.05
T I	1	0.102		
T E	2	7.438		
T S	2	6.824		
I E	2	21.236	1.910	
I S	2	10.066		
E S	4	1.104		
T I E	2	16.096		
T I S	2	10.126		
T E S	4	12.108		
I E S	4	8.240		
T I E S	4	2.404		
Within SS (error)	271	10.948		

$\overline{nh}$ = 7.729

TABLE 46

Means of Significant Main effects in ANOVA of Author Position Ratings (Table 45)

Exposures

3 exposure	2 exposure	1 exposure
7.682	7.806	6.742

Initial Opinion

Ext	7.977
Mod	6.842

Source

Hi	Lo	Anon
7.882	6.682	7.664

Discussion

The effects of the variables of major interest upon post communication attitude will be discussed in terms of the hypotheses mentioned in the introduction. Additional data will be considered as they are relevant to the explanations of the attitude data. Since the data were analysed in terms of post communication attitude scores, the results will be considered in terms of an after-only design.

At this point, a brief summary of the major concerns may be in order. This was a study of the interactive effects of multiple exposures to a persuasive communication with such well researched communication variables as source credibility and initial opinion (or discrepancy between source and recipient). Of additional interest were the effects of the foregoing variables over time.

Exposure: Immediate Effects on Attitude

The first concern of this study was to examine the main effects of the variable of repeated exposure to the communication. It was suggested in Hypothesis 1 that greater recall of the communication content in multiple, as compared to single exposure conditions, would be accompanied by a greater effect on post communication attitude in multiple exposure as compared to single exposure conditions.

Based upon the analyses presented in the Results section, repeated exposure to the communication did increase recall of both opinion-Q items and fact-Q items (Tables 25 & 17) and there was a low but significant relationship between recall of opinion-Q items and attitude score (Table 33). Thus the necessary conditions specified in Hypothesis 1 were satisfied. However, while the hypothesis calls for a main effect of exposure on attitude,

the effect did not occur. Exposure did, however, interact with source and also with time. These interactions are discussed below.

Exposure: Interaction with Source

The source by exposure interaction (Table 3) supports the first alternative suggested by Hypothesis 2a. When tested immediately after their last reading of the communication, the difference between the attitude scores of the 1-exposure, named source groups was greater than the difference between the multiple-exposure, named source groups. Comparison with the Anon source data pattern (which might be seen as the effect of the communication alone) suggests that at one exposure there was a slight inhibition of the general effect of the communication by the Lo source attribution, but a strong enhancement effect of the Hi source attribution. This effect "washed out" with multiple exposures, and in the 3-exposure condition, the attitude scores of both named source groups converged to the Anon source group level.

Since learning of both attitudinally relevant and attitudinally neutral communication content increased with multiple exposures, it might be suggested that with better learning of the communication (by repeated exposure in a controlled laboratory situation), the effects on post-communication attitude seem to be attributable mainly to the communication rather than to any effects of source. This might be accounted for by McGuire's contention (1969, p. 186) that, since there is a reluctance or inability on the part of S to learn the content of the communication in one exposure, S relies on source credibility to make his judgments about acceptance or rejection of the source's conclusions. If S is given an additional opportunity (e.g. repeated exposure) to learn, and instructed to learn, his evaluations of the conclusions seem to become more a function of the communication content than source credibility. The implication for previous one exposure laboratory

experiments is that the usual source effects may be attributable both to an effect of source, and a low level of communication learning. The implication for the world outside the laboratory, is that the effect of source might be reduced when and if repeated exposure leads to better comprehension and thereby better evaluation of persuasive communications.

Exposure: Effects Over Time

It was proposed in Hypothesis 3 that the effects of exposure over time would interact with the effects of source. Any "sleeper effects" that might appear in the one exposure condition would be reduced with multiple exposures. That is, there would be less loss of any source effects that did occur immediately after the communication session in the multiple exposure conditions than in the one exposure condition.

One necessary condition for testing this hypothesis is the occurrence of a sleeper effect in the one exposure condition. The data for the one exposure condition indicated that the Source x Measures interaction necessary for a sleeper effect did not obtain. The analysis did reveal a main effect of source as well as a main effect of measures, indicating that there was a reduction over time in attitude scores favorable to the communicator's position and that the relationship between the source groups did not change over time.

Consideration of previous sleeper effect studies (e.g. Weiss, 1953; Hovland & Weiss, 1951; Kelman & Hovland, 1953; Watts & McGuire, 1964) indicates that the present data lacked one factor necessary for obtaining a sleeper effect. This factor is an initial "discounting" effect on attitude in the Lo source condition. It is implicit in the "discounting" explanation of sleeper effect (cited in the introduction) that there be an initial inhibition of the expected effect of the communication by the Lo

(or negative) source attribution. In order to demonstrate an "inhibition" of effect, it is necessary to establish some kind of baseline for the potential effect of the communication. To show differential effects on opinion change for Hi vs Lo credible sources, even in comparison to some "no-communication" control group condition, allows one only to speak of greater or lesser effects of the source-communication combination on opinion. However, the notion of a discounting or a non-acceptance of the communicator's arguments implies that there is some baseline effect of the arguments by themselves, and that this effect interacts with source credibility to produce either an enhancement (in the case of the Hi source condition) or a discounting or inhibition (in the case of the Lo source condition). It is suggested here that a neutral or unnamed (anonymous) source condition could be used in order to establish a baseline for the arguments by themselves.[7] In accord with this, Hovland, Janis and Kelley (1953, p. 31, FN 2) have pointed out the importance of establishing a neutral communicator. However, McGuire (1969, p. 199) has cautioned that the academic atmosphere of the usual attitude change experiment, and the E's frequent identification with the communication position make it difficult to establish a truly "sourceless" baseline. Nevertheless, it might be argued that the E-as-communicator, academic-setting, and cogent-argument factors are present in the named source conditions, as well as in the unnamed source condition. Thus, by omitting a source attribution and leaving all other aspects of the situation constant (i.e. as in the Anon source condition), one can compare the effects of the communication "package" with those of the source attributions alone.

Some of the previous studies of sleeper effects, while not making this specific analysis, have provided a baseline against which to test enhancement or discounting (e.g. Weiss, 1953; Kelman & Hovland, 1953).

In the Kelman and Hovland study, comparison of the positive and negative source groups in relation to the neutral source group shows a "discounting effect." The neutral source group mean was between the means of the "positive" and "negative" source groups. However, the positive source group was only slightly more favorable than the neutral source group while the negative source group was much less favorable than the neutral source group. Thus, there appeared to be discounting of the information in the negative source condition. In the experiment by Weiss (1953), there was no neutral or anonymous source condition. However, it might be suggested that there was only a high credible source: the experimenter. (McGuire, 1969, has pointed out the importance of the E as "source" in persuasion experiments.) In one condition, E presented additional information which led to discounting of the information previously learned without changing the "source picture." Thus, we can say that the non-discounted group is the proper baseline since in both groups the source condition was the same. The initial difference between the discounted and the non-discounted groups was due to "discounting" of the high source's information. In both of these studies then, given this initial discounting effect, it was possible to demonstrate an increase in effect of the low source condition over time (Kelman & Hovland, 1953) or a differential loss over time (Weiss, 1953).

In the present study, inspection of the data for the one-exposure groups reveals that the "discounting" condition was not met. That is, in the one-exposure immediate-after scores (Table 12), the Lo source group was slightly less favorable than the Anon source group (but not significantly so) while the Hi source group was significantly more favorable to the communicator's position than the Anon source group. Therefore, while there was an "enhancement" effect of the Hi source condition, there was little discounting and little possibility of any enhancement of the Lo source group over time.

The failure to produce discounting in the Lo credible source condition might be explained by the following analysis. In pretesting, and in the control group evaluations of the source descriptions, no position on the issue was mentioned. However, it will be recalled that the communication argued against the belief in ESP. As has been shown elsewhere (Walster et. al., 1966) arguing against one's best interests can lead to an increase in the evaluation of trustworthiness of the source. Despite the disclaimer by McGuire (1969, p. 187) that expertness is the key to source credibility, it has been demonstrated (Weiss & Glastein, 1970) that the combination of expertness and trustworthiness is necessary for a source credibility effect. In this study, the fact that the gypsy fortune teller-circus performer was arguing in opposition to the existence of a phenomenon to which he owed his livelihood, probably resulted in an increase in his perceived trustworthiness.

Evidence of the surprisingness of the position taken by the Lo source can be found in an examination of the pretest ratings of the expected position of the source. These ratings indicated that the Lo source would be expected to be on the believe side of the scale ($\bar{X} = 5.55$ on a 1 = believe - 11 = disbelieve scale). In addition, among the small number of Ss in the present experiment who correctly recalled the source description at delayed testing (Table 43), there was somewhat greater recall of the Lo source than of the Hi source. Thus, it is suggested that the anti-ESP position was a "surprise" to most Ss.

In the Lo source description given to Ss, it was stated that "..he claimed to have read a good deal about ESP.." The implication intended was that, in the light of the other negative information presented, this claim was probably false. However, the apparent increase in his trustworthiness,

along with the cogency of his arguments, may have led to a reevaluation of his "expertness" as well, resulting in a general enhancement of the Lo source evaluation. The author evaluation data lend some support to this analysis. In comparison to the control Ss, the Lo source was evaluated less unfavorably (in fact close to the neutral point of the author evaluation scale) after exposure to the communication.

Apparently any discounting cues in the initial presentation of the Lo source description were quickly offset by this enhancement of his evaluation, due to the position taken in the communication. Since the necessary condition of an initial discounting effect was not obtained, the test of any "sleeper effect" was not possible, and therefore the effects of source over time could not be expected to follow the patterns predicted in Hypothesis 3. However, the effects of the other variables over time are of interest.

The 2PT immediate-after vs 1PT delayed-test-only comparison (Table 8) resulted in a Tests x Exposure interaction. The effect of the 2-exposure condition on attitude, while initially less than that of the 1- and 3-exposure conditions, exhibited greater maintenance over time. This outcome is rather difficult to explain. Based upon arguments advanced in the introduction to this paper, one might have expected this maintenance effect in the 3-exposure condition or in both of the multiple exposure conditions. That it should occur so markedly only in the 2-exposure condition demands comment and some attempt at explanation. Nevertheless, examination of the other data from the study lends little aid in understanding the effect. The author evaluation data showed a main effect of exposure such that multiple exposure Ss evaluated the sources better than 1-exposure Ss.

In addition, the T x E pattern in the author evaluation data indicates that in the 2PT condition, the 2-exposure Ss evaluated the source more favorably than did the Ss in the other exposure conditions. However, the 1PT means pattern followed the Exposure pattern described above (2 + 3 more favorable than 1). The quiz data also fail to aid in this analysis. The exposure effect on recall indicated better recall for multiple than single exposure conditions with no superiority for the 2-exposure group. Hence, the outcome stands as an unexplained occurrence, and may be no more than a chance result.

Initial Opinion

The predictions made in Hypothesis 4 were based upon the effects of discrepancy on attitude change. A distinction was made between the effects of "moderate" vs "extreme" levels of communication-receiver discrepancy. Since a single communication was used for the Ext and Mod Ss, communication-receiver discrepancy was a function of Ss' initial opinion. That is, if the communication in the present study can be seen as taking some particular position on the issue of belief in ESP (e.g. 9 or 10, etc.), then the Ss who rated themselves as 1-3 on the scale (Ext) were more "discrepant" from the communicator's position than were the Ss who rated themselves 4-6 on the scale (Mod).

Hovland, Harvey and Sherif (1957) have suggested that communications that are moderately discrepant from one's own position fall into the latitude of acceptance, and communications that are extremely discrepant from one's own position fall into the latitude of rejection. In terms of the Ext-Mod split on initial opinion in the present study, it might be expected that the communication fell into the latitude of acceptance for the Mod Ss and the latitude of rejection for the Ext Ss. Although no direct measure of

"latitude of acceptance-rejection" was taken in the present study, some support is gained from an examination of the data gathered at the delayed session on "recall of author position." Hovland et. al. (1957) have suggested that communications that fall into Ss' latitude of acceptance are "assimilated" and communications that fall into Ss' latitude of rejection are "contrasted." The scores on recall-of-author-position (Table 46) for the Ext Ss ($\bar{X}$ = 7.98) were closer to the disbelieve side of the (11-point) scale than were the scores for the Mod Ss ($\bar{X}$ = 6.84). Since there was only one communication and only one "position" advocated, the results might be interpreted as possibly indicating a contrast effect for the Ext Ss (whose self ratings were near the "believe" end of the scale) and an assimilation effect for the Mod Ss (whose self ratings were closer to the mid-point of the scale). Although such an interpretation, based upon delayed recall of the author's position, must be made with considerable caution, it does lend some support to the idea that the communication was in the latitude of acceptance for the Mod Ss and the latitude of rejection for the Ext Ss. Accordingly, it might have been expected that the curvilinear effect of discrepancy on attitude change predicted by Hovland et. al. (1957) would have occurred in the present study. The means pattern in the main effect of initial opinion found in all the analyses of attitude scores was such that the means for the Mod Ss were closer to the communicator's position than were the means for the Ext Ss. Although this general pattern was not different from that of the control Ss, the fact that the pattern was maintained after exposure to the communication does not contradict the social judgment expectations.

The interaction of Initial Opinion x Source in the comparison of 2PT immediate-after vs 1PT delayed-only attitude scores (Table 8) lends partial support to the predictions made in Hypothesis 4. The interaction appears

to be due to a reversal of source patterns between the Ext and Mod Ss. Among the Ext Ss, the Hi source group was more favorable to the communicator's position than were the other two source groups, while among the Mod Ss, the pattern was Anon > Lo > Hi.

The predictions in Hypothesis 4 are based upon the dissonance formulation. As outlined by Aronson et. al. (1963), the only means of reducing dissonance created by being discrepant from the source (in the usual attitude change experiment) are source derogation and opinion change. Since it is easier to derogate a low than a high credible source, the turn-down of the attitude change curve occurs sooner in the low than in the high source condition, as discrepancy increases beyond a moderate level. Thus, the result is a greater source difference at extreme levels of discrepancy than at moderate levels of discrepancy. Since the Ext Ss in the present experiment were more discrepant from the communicator's position than were the Mod Ss, the above predictions were applied directly to the initial opinion subgroups as follows (H-4): a greater source difference in opinion was expected among the Ext than among the Mod Ss. Although, as predicted, an I x S interaction was obtained, the source pattern among the Mod Ss was the reverse of that for the Ext Ss. This Mod source group pattern requires an attempt at explanation.

It is tentatively suggested that the "enhancement" effect in the Lo source condition discussed in connection with sleeper effects (H-3) could account for the source patterns in the I x S interaction. Among the Ext Ss, (who may have considered the issue of greater importance and the communication more discrepant than did the Mod Ss), the effect was only strong enough to raise the Lo source group attitude scores slightly (but not significantly)

above the Anon source level, but not to reverse the expected source pattern (i.e. Hi > Lo). Among the Mod Ss, however, the effect was strong enough to lead to a reversal of the usual Hi-Lo source pattern (i.e. Lo > Hi). The relation of learning to these patterns will be discussed subsequently.

Effects of Two Kinds of Testing

Since the conditions for "sleeper effect" as usually defined, did not occur in this study (see above), the question about different sleeper effect patterns (H-5) is left unanswered. However, the use of single vs multiple attitude testing procedures made it possible to test some inferences about the effects of time and testing on attitude.

Once an attitude measure has been taken, the S knows that he is in an attitude change experiment (Silverman & Shulman, 1970; Love & Greenwald, 1970). Thus, a second attitude measure at some delayed time may elicit an attempt at consistency, and thereby change any other effects of time on attitude. In the present study, the notion of possible consistency effect differences was testable with the 2PT vs 1PT design. Comparison of the delayed test attitude scores for the 2PT and 1PT Ss (Appendix C , Table 4). yielded a weak effect of testing ($p < .10$). 2PT Ss were slightly less favorable to the communicator's position than were the 1PT Ss. Thus, the outcome is opposite to what might be expected by a "consistency" notion.

However, it is possible that a consistency effect would occur mainly to the extent that the delayed session contained cues that reinstated the first session. In this study, the "demand characteristics" were minimized by having a new situation, a different E at the delayed testing session, and a general deemphasis of any "attitude-change-experiment" cues. This procedure may have reduced the probability of obtaining a consistency effect.

Learning Measures

In the introduction to this paper, some suggestions were made concerning source credibility and the quality of content learning. With regard to source credibility, McGuire (1969) has suggested that, rather than attempt to learn the arguments, Ss may use the source attribution to evaluate the conclusions in a persuasive communication. On the other hand, when the source is not made explicit (e.g. an anonymous source), Ss must learn the arguments in order to evaluate the conclusions. Therefore, it might be predicted that more learning of the communication content would occur in the Anon source condition than in the named source conditions. However, in this paper, it has been suggested that there may be two kinds of communication content: attitudinally neutral and attitudinally relevant. For example, one could easily learn the "identity of Houdini," or that "PK is the term for Psychokenesis," without accepting the conclusion that "science can explain all of the evidence gathered by the psychic researchers." When McGuire's notion of differential learning of arguments to evaluate conclusions is placed in the context of qualitative content, we might expect that the named vs anonymous source effects predicted above would occur in the attitudinally relevant material (i.e. the arguments or conclusions) rather than in the attitudinally neutral material (i.e. the "facts").

The analysis of the items designated as attitudinally relevant or opinion-Q (but not the analysis of the attitudinally neutral items), yielded an I x S interaction (Table 26). Among the Mod Ss, as predicted, the Anon source group recalled more items than did the named source groups.

However, among the Ext Ss, contrary to McGuire's prediction, the Hi source group recalled more opinion-Q items than did the Lo or Anon source

groups. The Ext vs Mod difference in source pattern might be accounted for by differences in importance of the issue. That is, there is a significant correlation between the importance rating and the Self rating (Table 37). This relationship indicates that the Ext Ss may have considered the issue to be of greater importance than did the Mod Ss. The effect predicted by McGuire may occur only with issues of moderate importance to S (i.e. Mod Ss). The Ext Ss who found themselves in disagreement with the Hi credible source may have learned more of the content than did the Lo or Anon source groups as either a justification for attitude change or a defensive strategy for resistance. Accordingly there was a "source effect" (Hi > Lo) on the recall of attitudinally relevant material for the Ext Ss.

Analysis of the quiz items that had been designated as attitudinally neutral (fact-Q) demonstrated that, as exposures increased, recall of these items increased. However, recall of fact-Q items was not related to initial opinion or source condition. The results of the fact-Q analyses support the conclusion that the "learning rationale" procedure was effective and that learning did increase over exposures.

Relationship Between Attitude and Learning

The most striking outcome of the data was the relationship between attitudinally relevant quiz item scores and post communication attitude. The data patterns suggest that source and initial opinion were important in the recall of attitudinally relevant quiz items as well as in post-communication attitude scores. The I x S interactions in the analyses of both the opinion-Q items (Table 26) and the attitude scores over time (Table 8) were the result of similar source pattern reversals between the Ext and Mod Ss. The two measures might be related with the same theoretical explainations.

Ext Ss may have regarded the issue as more important than did the Mod Ss, leading to the predicted effect of the Hi source condition on attitude (H-4). This might also have been accompanied by increased attention to and recall of the attitudinally relevant quiz items. (Either S learns more in order to support his increased favorability to the communicator's position or increased learning leads to increased favorability toward the communicator's position.) The Lo source condition should have led to source derogation (and discounting) resulting in both attitude scores and opinion-Q scores that were below the Anon source baseline. However, the "surprise" effect, suggested earlier to account for the lack of discounting, may also have led to somewhat increased attention to the arguments. Thus, for the Ext Ss in the Lo source condition, attitude scores and opinion-Q scores were at, or slightly above the Anon source condition baseline.

Among the Mod Ss, while the source groups were not significantly different from each other on attitude scores, they did yield the following pattern: Anon > Lo > Hi. If, as McGuire (1969) contends, there is less attention to arguments, and presumably less careful reading of the communication in the named source conditions than in the Anon source condition, then it follows that effects in the named source conditions are due mainly to the source attribution, while effects in the Anon source condition are due to the communication itself. In the named source conditions, Mod Ss make their accept-reject decisions based upon source attribution, with relatively little attention to the communication. In the Anon source condition, Mod Ss pay more attention to the content in order to decide how to judge the conclusions. In the present study, for the Mod Ss, the communication led to a judgment of the Anon source as relatively highly credible (see Table 40), and a

recall-of-author-position score that was also relatively close to that of the Hi credible source (see Table 46). Thus, the effect of the Anon source on attitude (presumably based mainly upon the communication) was slightly (but not significantly) better than the effect of the Hi credible source condition (presumably based mainly upon source attribution). However, the effect of the Anon source condition on recall of the attitudinally relevant content (opinion-Q) was greater than that of the named source conditions, since more careful reading was required in the Anon source condition.

The "enhancement" of the Lo source (due to the "position" taken in the communication) might be expected to lead to greater attitude change than predicted, as well as increased attention to the communication, hence resulting in the source reversal (Lo > Hi) for the Mod Ss in the I x S interactions of both the attitude scores and opinion-Q scores.

Effects on Learning over Time

The comparison of (attitudinally relevant) opinion-Q scores over time indicated that the I x S pattern found immediately after exposure to the communication (Table 26) was maintained in the analysis of the 2PT condition over time (Table 29), but did not reappear in the analysis of the 1PT condition over time (Table 32). This outcome suggested that, although immediate-after attitude testing had not induced a difference between the 2PT and 1PT conditions over time on attitude scores, immediate after attitude testing (2PT) had led to a greater maintenance of initial opinion and source effects on attitudinally relevant (opinion-Q) quiz items than had the delayed testing only condition (1PT). It will be recalled that immediately after exposure to the last communication, Ss responded to the final quiz (which showed the I x S interaction), and then responded to the attitude

measure. Since Ss had not been forewarned that their attitudes would be measured, the task required that they think about the arguments and source again. Thus, the immediate testing situation may have constituted a "rehearsal" trial for the 2PT Ss, leading to the maintenance of the Initial Opinion x Source pattern in this condition.

The present analysis also bears on the rationale presented in the introduction for predicting Hypothesis 5. In deriving Hypothesis 5, it was suggested that the immediate after attitude measure would act as a rehearsal trial leading to a greater residual effect on attitude than in the condition in which this rehearsal trial was absent (and therefore a rising sleeper pattern rather than a dropping one). The maintenance of the I x S recall data patterns over time in the 2PT (where the rehearsal effect was postulated) but not in the 1PT condition, lends some support to this rehearsal notion. The effect of rehearsal patterns on sleeper effect needs further testing.

Conclusions

A number of positive conclusions about the effects of learning, exposure, and source credibility on attitude as well as directions for further research can be drawn from the present study.

The usefulness of a qualitative analysis of communication content and "quiz" items in terms of attitudinally relevant and attitudinally neutral material was demonstrated here, as well as a relationship between recall of attitudinally relevant material and post-communication attitude. In addition, post-communication commitment to an attitude position seemed to be related to recall over time in a complex manner.

In the present study, the opportunity for better learning afforded by repeated exposures to a communication, in a laboratory situation, seemed to reduce attitude change differences due to "source attribution." It was concluded that source effects on attitude found in previous one-exposure studies may have been due to poor learning (as defined here in terms of attitudinally relevant material).

Since the present induction of "discounting" effects was unsatisfactory, the problem of sleeper effects and different patterns of delayed effects on attitude as a function of testing paradigm requires further examination. In this context, it is interesting that recent research on sleeper effects using a counterarguing paradigm failed to demonstrate consistent effects (Greenwald & Gillig, 1971). However, this research is difficult to interpret since baselines for discounting, as suggested here, were not used.

In interpreting the present results, it was possible to relate post communication attitude to recall of attitudinally relevant content. When examined as a function of initial opinion, source credibility effects on attitude and on recall of content were directly related when initial opinion was extremely discrepant from the communicator's position. When the communicator-receiver discrepancy was only moderate, the effects of source credibility on attitude were related to recall in terms of a "need" to examine content more closely in the absence of source cues, than when source is made explicit.

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Footnotes

1. These findings received some support from a study by Jones and Kohler (1958). However, neither Cook and his associates (Brigham & Cook,1969; Waly & Cook, 1966; Woodmansee & Cook, 1967) nor Greenwald and Sakamura (1967) were able to replicate the Levine and Murphy findings. Examination of the standard procedures used by these later investigators shows that their Ss learned statements on both sides of the issue before retention tests were administered, while Levine and Murphy (1943) presented prose material, and tested after presentation of each side of the issue.

2. Thanks are due to Mr. Michael Turner for arranging the participation of his own and other classes in the Department of English of Valley Stream High School, New York.

3. Factors significant in the ANOVAs of the attitude scores were also significant when ANCOVA was used with SR (self-rating) as the covariate; therefore, ANOVA analyses were used in reporting the results.

4. It will be recalled that four separate control groups were formed (2PT-Ext; 2PT-Mod; 1PT-Ext; 1PT-Mod). To assess the effect of exposure to the communication, the combined mean for each exposure level (for Ext Ss and for Mod Ss in the 2PT and also the 1PT conditions) was compared to the appropriate control group. The effects of source were assessed by comparing the combined means for each source level with the appropriate control group in the same manner. In addition, the overall means for Ext and Mod Ss in the 2PT and also the 1PT condition were compared to the appropriate control group. Thus, there were seven comparisons with each control group (Dunnett, 1955, 1-tail test). Comparisons with individual cells of the original design were not made.

5. As noted in the pretest results section, comparison of the believe-disbelieve predictions, and the pretest control group responses to item 5 indicated that this item was unsuitable for the purposes of the quiz analysis. There were two possible correct answers; there were no differential predictions for the believe-disbelieve Ss; and 92% of the control group Ss selected the correct answer, leaving no room for evidence of learning. (This was in contrast to an average of 20% correct for the other items.) Therefore, item 5 was eliminated from the analyses of the quiz scores.

6. Pretest data indicated that context effects occur when Ss rate several sources or several topics simultaneously.

7. The Anonymous or unnamed source condition provides a baseline for studying the effect of the communication alone. It might be argued that in an anonymous source condition (or "neutral" source condition as used by Kelman and Hovland, 1953), the recipient attributes certain characteristics to the presumed source based upon the communication content, cogency of the arguments, style of delivery (whether written or spoken), etc. The inclusion of a source label or description (usually obviously positive or negative) helps to round out this source impression. If we strip away the source description, we provide only the portion of the picture available from the communication itself. Therefore it is plausible and reasonable to use the Anon source condition attitude scores as a baseline or control condition against which to test the effects of source.

A P P E N D I X

Verbal Instructions

(All Conditions)

PLEASE DO NOT OPEN THE BOOKLETS OR WRITE ANYTHING UNTIL INSTRUCTED TO DO SO !

This is a study of learning. We are interested in the learning EFFECTIVENESS of various media: Written,..visual, and auditory. We have selected several topics and styles of presentation... You will find this a bit different from the usual nonsense syllable studies of learning....quite interesting...and kind of...FUN. Your responses are ANONYMOUS. Random numbers have been put on the booklet sets for IDENTIFICATION. DO NOT PUT YOUR NAME ON ANY OF THE MATERIAL....

There will be several presentations of material with a QUIZ AFTER EACH ONE, so please pay careful attention. You will have time to look at each set of material only ONCE. Please follow the instructions in the booklets CAREFULLY. Once you have finished a page or section it is important that you do NOT TURN AHEAD OR BACK UNTIL INSTRUCTED TO DO SO.

When you finish a page in the booklet, turn it over and fold it back.

Please do your own work and do not consult with your neighbor.....since all ofthe booklets are different. The various trials will be timed.... so work quickly and carefully.

PLEASE USE THE IBM PENCIL TO MARK YOUR ANSWERS ON THE IBM SHEET IN THE SPACE DESIGNATED.

Any Questions....?

Please turn to Booklet 1 and begin...yóu will have 5 minutes for this section (Note: 6 minutes were allowed).....then...)

If you are still working...please put a checkmark next to the place that you are up to now and CLOSE the booklet (repeat)

Now turn to booklet number 2...On the first page you will find a QUIZ on the material you just looked at. Please put your answers on the IBM sheets

Verbal Instructions - 2

You will have 2 minutes to complete this quiz
(after 2 minutes....)

Turn to the STOP page ...and STOP! ...and LISTEN
(Music for 20 seconds)

Now turn to the next page marked Pop Quiz 1....please put your answers on the IBM sheet. (1 minute for quiz)

Now put the IBM sheets away, ...turn to the next page in your booklet...

You will have 5 minutes to complete this section Start now.

Work through to the end of the booklet and stop

If you finish before time is up... do not go back... close the booklet and wait for further instructions.....

(INSTRUCTIONS HERE SABE AS TRIAL 1 for remaining trials.. then last QUIZ)

...You will have 5 minutes to complete this quiz....

...(after 2-4 minutes) ... If you have finished the quiz, do not turn back, turn the page and continue on through the booklet...Be sure that you have answered all the questions on the last page before closing the booklet.

* * *

(Close proctering reduced instances of "cheating" and allowed booklets of "cheaters or "confused individuals" to be flagged and removed from the analyses.

"Debrief"concerned Learning of music, pictoral material and "booklet numbers". Interest was expressed in all three aspects that were presented to Ss.

Then asked Ss to refrain from talking about experiment outside of class to "prevent others from rehearsing..etc."

All classes claimed ignorance of the study before participating.

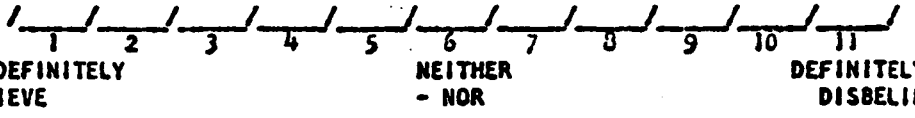
Pre Measure Page

In this portion of the study we are interested in how people learn prose material. We have selected some new material on the topic of extrasensory perception (ESP).

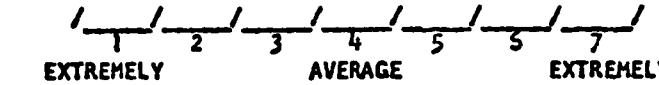
The prose material begins on the following page. Before turning the page, please take a moment to indicate your own general position on the scales provided below. That is, whether, and to what extent, you believe or disbelieve extrasensory perception (ESP)is an actual, reputable phenomenon. (DO NOT TRY TO LEARN THE INSTRUCTIONS. They are only for the purpose of telling you how to use the scales. Mark both scales as instructed and then turn the page and begin the prose selection).

If you definitely believe in ESP, place an X in box 1; if you definitely disbelieve in ESP, place an X in box 11; if you neither believe nor disbelieve in ESP, place an X in box 6. If you believe in ESP somewhat, but not definitely, place an X in the box between 1 and 6 that best represents your degree of belief. Finally, if you disbelieve in ESP somewhat, but not definitely,place an X in the box between 6 and 11 that best represents your degree of disbelief. (Place your X within a box, not on a line between boxes.) Mark ONE box only.

EXTRA SENSORY PERCEPTION (ESP) AS AN ACTUAL REPUTABLE PHENOMENON



Now indicate how important the topic of extra sensory perception as an actual, reputable phenomenon is to you. If for you it is above average in importance, place an X in box 5, or 6, or 7, depending on how important you consider it to be. If for you, it is below average in importance, place an X in box 1, or 2, or 3, depending on how unimportant you consider it to be. If it is of average importance to you, place an X in box 4. (Mark only ONE box.)



#1 Credible Source

The following passage was taken from the transcript of a popular TV interview program which invites prominent speakers to express their views on various topics of interest. The speaker was Dr. D.W. SPRAGUE, Professor of Experimental Psychology at Princeton University. Dr. Sprague, who is a nationally recognised authority in the field of sensory and perceptual processes, was asked by the National Research Council to head a blue ribbon committee of scientists to examine the evidence for the validity of extrasensory perception and other psychic phenomena. The committee recently completed its report to the Committee and was commended for the thoroughness and quality of its work.

Extrasensory perception, as certain psychic phenomena are known these days, is a most fascinating topic. The problem of whether the human mind can perceive by any means other than the obvious activity of the recognised senses has always intrigued people, including many with scientific training. However, over the centuries, the subject has been bedeviled by fraud and naive acceptance of claims. But all investigations that I have ever read or heard about have failed to prove its existence.

Carnivals and circuses abound with seers, spiritualists and mediums who claim to know all and see all; but most resort to simple gimmicks and confederates. In previous times, numerous "sensitives" (those who claimed to have psychic powers) willingly demonstrated their "marvels" before examining committees. Although some people were fooled, professional magicians, themselves masters of illusions, were not. For instance, the great magician Houdini devoted the last years of his life to exposing phoney mediums and their methods. This work was continued by Dunninger (another well-known magician) who for many years defended an offer of $21,000 for any physical spirit manifestations that he could not duplicate by scientific means. No one ever collected on his challenge.

In the past 40 years as you know, efforts have been made by a number of serious researchers to apply the usual scientific methods of investigation to the problem of extrasensory perception. Chief among the techniques is one in which the subject tries to perceive symbols on unseen cards turned up one by one behind a screen or in another room. Sometimes the subject is hundreds of miles away from the target. Some investigators use a so-called sender who looks at the cards and tries to send his thoughts to the subject. Others have subjects try to sense the symbols directly with no other person involved.

By these and other means, investigators (who call themselves "parapsychologists") have studied all types of supposed psychic phenomena. These include telepathy (the communication of thoughts of any kind from one mind to another); clairvoyance (contact between the mind and objects or events far away); precognition (awareness of future events by means other than inference from present evidence); and PK or psychokenesis (the influence of the mind upon matter, such as controlling the roll of dice, etc.). But none of the investigations have been able to turn up any sound evidence for the existence of any of these phenomena.

(Princeton Psychology Professor's transcript, cont'd)

Millions of tests have been conducted and it seems clear now that people are able to guess an unseen card only by blind luck or chance. True, a very small number of people among those investigated have been able on rare occasions to guess the cards slightly better than mere chance and, since the odds against successful guessing of this kind are extremely high, some people who want to believe have jumped to the conclusion that ESP does exist. But "slightly better than chance" means that instead of the 5 correct guesses out of 100 expected by chance (probability theory) the lucky person may be guessing correctly on 7 or 8 out of 100 cards. If a person really had psychic powers it is reasonable to expect that he might be correct much more frequently than just a little better than chance.

Actually, with the thousands of people tested over and over again someone is bound to get lucky. Just as a compulsive gambler, who guesses the cards for money sometimes gets a "run of luck" for a while, so does an ESP researcher get a run of luck with a subject who is guessing the cards. The end of the extraordinary run has nothing to do with power gain or loss but is just the end of a lucky streak of guessing. This is why those who claim to have Psi ability report that they never know when it will appear and usually confess that they quickly lost any ability that they thought they had. Yet, all our knowledge of mental functions shows that there is always some improvement with practice and some retention of what is learned for some time even without further practice, rather than such sudden loss.

Furthermore, any notion of ESP is incompatible with current scientific theory and the fundamental limiting principles of time, space, and causality that every schoolboy knows. Let me outline just a few:

1. It is claimed that ESP penetrates into the future where rational inference is powerless. But this would mean that our future is predestined or fixed for us, and that our actions are not free. While sometimes predictions appear to be accurate, they turn out on examination to be cleverly worded to fit any and all possible outcomes.
2. ESP is supposed to be as strong over distances of hundreds of miles as in the next room. But this kind of claim contradicts any scientific theories of human and animal communication.
3. Presumably, patterns on cards in the center of a deck are "read" without interference from cards above and below in the deck. This would require some kind of strange force without limit that is invisible, that can be sent in any direction with the speed of light through buildings and mountains, that can locate a deck of cards hundreds of miles away and find its way to the middle of the deck. Imagine how much practice would be necessary to develop such fantastic accuracy.

While an idea of ESP sounds romantic and intrigues many people, all our scientific knowledge and numerous, careful, unbiased investigations tell us that there is no valid evidence to support a claim that ESP actually exists.

Lo Credible Source

The following passage was taken from the transcript of a popular TV interview program which invites members of the audience to express their views on various topics of interest. The speaker identified himself as D.W. SPRAGUE, a gypsy working as a fortune teller in a small travelling carnival of which he is a part owner. The interviewer brought out through questions on his background that the carnival was in ill-repute with the townspeople and police in a number of places where it had performed. Also Mr. Sprague admitted to several convictions for minor fraud and perjury in relation to the carnival's operations. However he claimed to have read a good deal about extrasensory perception and other psychic phenomena.

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(Gypsy fortune teller's transcript, cont'd)

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ANew Source

Please read the following passage carefully. You will be asked to give your evaluations of it.

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B O O K L E T

N U M B E R

4

DO NOT OPEN UNTIL INSTRUCTED TO DO SO

QUIZ 3

The following questions refer to the material you have just read. Please do the best you can. Use the IBM sheet provided to mark your answer. If you do not know the answer, leave it blank.

If you did not finish the reading in the time allowed, check here/___/

15. Mental control over matter is called (a) precognition, (b) telepathy, (c) PK, (d) clairvoyance.

16. The fact that "believers" get more successful results in psi experiments than "nonbelievers" is evidence that:
(a) psychic phenomena are easily disturbed by hostile thoughts
(b) non-believers are not as careful in their methods
(c) believers are open to error in their eagerness to get results.
(d) they have found a true phenomenon

17. Psychokenesis is usually demonstrated on (a) horses, (b) dice (c) cards (d) has never been demonstrated.

18. Scientific research on the topic (a) should definitely prove the existence of ESP.
(b) should help to settle the question of the existence of ESP
(c) definitely disprove the existence of ESP
(d) is useless because of the nature of ESP

19. Psychic research uses methods similar to (a) physics, (b) chemistry (c) psychology (d) more than one of these.

20. A person with psychic powers is usually called (a) a mystic (b) a sensitive (c) a swami (d) a mutant

21. The scientific study of psychic phenomena (a) has never been attempted (b) has been going on for the past 20 years, (c) has been going on for the past 40 years, (d) has been going on for the past 400 years.

22. Psychic powers are usually effective (a) over large distances, (b) small distances (c) only in the next room (d) not really effective at all

23. The "basic limiting principles" refers to (a) techniques of mediums, (b) scientific principles (c) proof of the existence of ESP (d) none of these

24. Science can explain (a) all , (b) most (c) some (d) none, of the evidence gathered by the psychic researchers.

Now we would like to know the kinds of general feelings and associations you have about extra sensory perception (ESP) as an actual, reputable phenomenon.

Each of the scales provided below contains 7 boxes. The words at the right and left of the scale indicate the dimension of judgment to be used in making that particular rating. If, for you the topic is associated equally with the words at both ends of the scale place an X in box 4. If you feel that extra sensory perception (ESP)as an actual, reputable phenomenon is more closely associated with one word than the other , indicate the degree of closeness by placing an X in the appropriate box along the scale in the direction of that word. Be sure to mark only ONE box on each scale.(The X should be within the box, not on a line between boxes.) Be sure to mark EACH scale before going on.

EXTRA SENSORY PERCEPTION (ESP) AS AN ACTUAL, REPUTABLE PHENOMENON

True	/____/____/____/____/____/____/____/	untrue
	1 2 3 4 5 6 7	
dishonest	/____/____/____/____/____/____/____/	honest
	1 2 3 4 5 6 7	
probable	/____/____/____/____/____/____/____/	improbable
	1 2 3 4 5 6 7	
nonexistent	/____/____/____/____/____/____/____/	existent
	1 2 3 4 5 6 7	

2 PT Condition only

Now we would like to know your general feelings about the speaker in the transcript you just read as a source of information about ESP as an actual, reputable phenomenon.

Each of the scales provided below contains 7 boxes. The words at the right and left indicate the dimension of judgment to be used in making that particular rating. If for you , the speaker is associated equally with the words at both ends of the scale, place an X in box 4. If you feel that the speaker is more closely associated with one of the words than the other, indicate the degree of closeness by placing an X in the appropriate box along the scale in the direction of that word. Be sure to mark only ONE box on each scale. (The X should be within the box, not on a line between boxes.) Be sure to mark each scale before going on.

Remember, you are to rate the speaker in the transcript you just read as a SOURCE OF INFORMATION on the topic of EXTRA SENSORY PERCEPTION AS AN ACTUAL REPUTABLE PHENOMENON.

Knowledgeable	/____1/____2/____3/____4/____5/____6/____7/	Uninformed
My Kind	/____1/____2/____3/____4/____5/____6/____7/	Not my kind
Untrustworthy	/____1/____2/____3/____4/____5/____6/____7/	Trustworthy
Influential for me	/____1/____2/____3/____4/____5/____6/____7/	Not influential for me
Experienced	/____1/____2/____3/____4/____5/____6/____7/	Inexperienced
One-sided	/____1/____2/____3/____4/____5/____6/____7/	Fair

We will answer any questions that you may have about this study and explain its purpose more fully as soon as everyone has handed in the booklet. However, before we do, we would like you to write down your general impressions, and any comments you may have about the questionnaire and what you think the research is all about.

If you have no thoughts about this at all, write "none".

We would like to know about certain of your evaluations about the interview you have read.

Whether or not you agree with him, how strong a case do you think the speaker made for his point of view? Please place an X in the box on the graphic scale below that best represents your view on this.

In general, were the arguments he presented new or novel ones for you? (Check one.)

( ) New for me ( ) Not new for me

Were the arguments presented the kind you would have expected this person to make?

( ) as I expected ( ) not as I expected

(Please explain your answer briefly, below)

We are interested in YOUR approach to the task.

Did you read the selection through each time it was presented?

In a FEW BRIEF WORDS, describe how you handled the learning task the way you did (ie what did you look for, what cues did you use etc)

_____

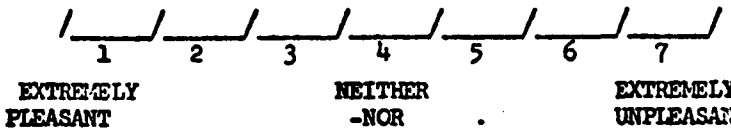
_____

_____

_____

_____

On the graphic scale below, indicate how pleasant or unpleasant participating in this study was for you..



DEMOGRAPHIC DATA

BE SURE TO ANSWER ALL QUESTIONS

Male _____ Female _____

Date of Birth: Day _____ Month _____ Year _____

Siblings: Number of Older Brothers _____

Number of Younger Brothers _____

Number of Older Sisters _____

Number of Younger Sisters _____

I am an only child _____

Field of specialization (major) _____

Control Group Source Ratings

(Ss Rated One Source Only)

to Source Evaluation Control Group

Now we would like to know your general feelings about the person to be described below as a SOURCE OF INFORMATION about ESP as an actual reputable phenomenon.

Each of the scales provided below contains 7 boxes. The words at the right and left indicate the dimension of judgment to be used in making that particular rating. If for <u>you</u> the person is associated equally with the words at both ends of the scale, place an X in Box 4 on the scale. If you feel that the person is more closely associated with one of the words than the other, indicate the degree of <u>closeness</u> by placing an X in the appropriate box along the scale in the direction of that word. Be sure to mark only ONE box on each scale (The X should be within a box, not on a line between boxes.) Be sure to mark EACH scale before turning the page.

D.W. SPRAGUE (In an interview, he identified himself as a gypsy working as a fortune teller in a small traveling carnival of which he is a part owner. The interviewer brought out through questions on his background that the carnival was in ill-repute with the townspeople and police in a number of places where it had performed. Also, Mr. Sprague admitted to several convictions for minor fraud and perjury in relation to the carnival's operations. However, he claimed to have read a good deal about extra sensory perception and other psychic phenomena.)

Remember, you are to rate the person described above as a SOURCE OF INFORMATION on the topic of EXTRASENSORY PERCEPTION (ESP) AS AN ACTUAL,REPUTABLE PHENOMENON

Knowledgeable	/ 1 / 2 / 3 / 4 / 5 / 6 / 7 /	Uninformed
My Kind	/ 1 / 2 / 3 / 4 / 5 / 6 / 7 /	Not my kind
Untrustworthy	/ 1 / 2 / 3 / 4 / 5 / 6 / 7 /	trustworthy
Influential for me	/ 1 / 2 / 3 / 4 / 5 / 6 / 7 /	Not influential for me
Experienced	/ 1 / 2 / 3 / 4 / 5 / 6 / 7 /	Inexperienced
One-sided	/ 1 / 2 / 3 / 4 / 5 / 6 / 7 /	Fair

Hi Source Evaluative Control Comm

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Dr. D.W. SPRAGUE (Professor of Experimental Psychology at Princeton University. Dr. Sprague, who is a nationally recognised authority in the field of sensory and perceptual processes, was asked by the National Research Council to head a blue ribbon committee of scientists to examine the evidence for the validity of extrasensory perception and other psychic phenomena. The committee recently completed it's report to the Council and was commended for the thoroughness and quality of it's work.)

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knowledgeable	/ 1 / 2 / 3 / 4 / 5 / 6 / 7 /	uninformed
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One-sided	/ 1 / 2 / 3 / 4 / 5 / 6 / 7 /	Fair

Delayed Test Booklet
All Ss

HUNTER COLLEGE

OF THE CITY OF NEW YORK
695 PARK AVENUE
NEW YORK 21, N. Y.

Department of Speech and Dramatics
DEBATING SOCIETY

March 1970

To the Faculty and Students of Hunter College:

This Spring, the Hunter College Debating Society, in conjunction with the Student Council, has prepared a series of debates on different topics. Each debate will include discussion from the audience and be followed by refreshments. Prominent speakers on each topic have been invited. The series is open to the entire college community.

In order to help us plan facilities for the likely size of the audience, we have prevailed upon several of the instructors in various departments to allow us a few minutes of class time to present the attached questionnaire. Your responses will give us the information needed to make our decisions.

Thank you all for your cooperation. Looking forward to seeing you at our first session in the Spring.

Prof. Margret Dumont
Faculty Adviser

Jeanne Chapko
Jeanne Chapko
President

md/jc

Speakers on the following topics have been invited for the Spring term (dates to be announced). We would like you to indicate your general feelings about the topics on the scales below each topic. The words at each end of the scale indicate the dimension of judgment to be used. Please mark the appropriate box on EACH scale that indicates your feelings about the topic. Be sure to mark EACH scale. If you cannot decide between two adjectives, mark 0 on that scale. Do not leave any blank.

ESP (extrasensory perception) as an actual phenomenon

Probable	+3	+2	+1	0	-1	-2	-3	Improbable
dishonest	-3	-2	-1	0	+1	+2	+3	honest
True	+3	+2	+1	0	-1	-2	-3	untrue
nonexistent	-3	-2	-1	0	+1	+2	+3	existent

Adoption of the Metric system of weights and measures in the U.S.

Intelligent	+3	+2	+1	0	-1	-2	-3	Unintelligent
invalid	-3	-2	-1	0	+1	+2	+3	valid
good	+3	+2	+1	0	-1	-2	-3	bad
worthless	-3	-2	-1	0	+1	+2	+3	valuable

Yoga for health

likely	+3	+2	+1	0	-1	-2	-3	unlikely
unpleasant	-3	-2	-1	0	+1	+2	+3	pleasant
active	+3	+2	+1	0	-1	-2	-3	passive
useless	-3	-2	-1	0	+1	+2	+3	useful

ACTIONS

We are also interested in how much interest these topics generate. Please check the appropriate box for EACH question below.

	YES	NO	DONT KNOW
Would you be willing to distribute pamphlets in support of the idea that ESP is an actual phenomenon ?	☐	☐	☐
Would you be willing to try to convince a friend that ESP is an actual phenomenon ?	☐	☐	☐
Would you wear a lapel button aclaiming that ESP is an actual phenomenon ?	☐	☐	☐
Would you be willing to distribute pamphlets in support of the adoption of the Metric system of weights and measures in the U.S. ?	☐	☐	☐
Would you wear a lapel button aclaiming the adoption of the Metric system of weights and measures in the U.S. ?	☐	☐	☐
Would you be willing to convince a friend that the Metric system of weights and measures should be adopted in the U.S. ?	☐	☐	☐
Would you wear a lapel button aclaiming Yoga as healthful ?	☐	☐	☐
Would you be willing to convince a friend that Yoga is healthful ?	☐	☐	☐
Would you be willing to distribute pamphlets in support of the idea that Yoga is healthful ?	☐	☐	☐

Please write down any further comments you may have about the topics selected for the debates, and any suggestions you may have about the topics or the questionnaire.

PLEASE BE SURE TO COMPLETE THE FOLLOWING INFORMATION

Male____ Female_____

Date of Birth /___/___/___/
day- month -year

Number of Brothers /_____/_____/ Number of Sisters /_____/_____/
older - younger older -younger

Class standing (upper soph, freshman, etc) _____

Field of specialization (Major) _____

Plan to attend: Adoption of the metric system in the U.S. /___/

ESP /___/

Yoga for health /___/

Do Not plan to attend any because:

No time /___/

not especially interested in any of the topics /___/

Other: _____

PSYCHOLOGY CLASSES ONLY

Since arranging the schedule, it has come to our attention that some classes were given a speech to read about ESP, one of our scheduled topics. Did you read the article presented in your psychology class on ESP ? Yes____ No ____

The Debating club is interested in peoples reactions to public speakers. Please answer the following questions:

Do you remember the speaker whose speech you read on ESP?

_____
(name or description)

How knowledgeable would you say he was in his presentation on ESP ?

Knowledgeable ___/ ___/ ___/ ___/ ___/ ___/ ___/ Uninformed
+3 +2 +1 0 -1 -2 -3

How fair was his presentation about ESP ?

One-Sided ___/ ___/ ___/ ___/ ___/ ___/ ___/ Fair
-3 -2 -1 0 +1 +2 +3

How experienced was the speaker on the topic of ESP ?

experienced ___/ ___/ ___/ ___/ ___/ ___/ ___/ inexperienced
+3 +2 +1 0 -1 -2 -3

How trustworthy do <u>you</u> think the speaker was as a source of information about ESP?

untrustworthy ___/ ___/ ___/ ___/ ___/ ___/ ___/ trustworthy
-3 -2 -1 0 +1 +2 +3

How influential was the speaker for <u>you</u> on the topic of ESP

Influential for me ___/ ___/ ___/ ___/ ___/ ___/ ___/ Not influential for me
+3 +2 +1 0 -1 -2 -3

What is your general feeling about the speaker ?

Not my kind ___/ ___/ ___/ ___/ ___/ ___/ ___/ My kind
-3 -2 -1 0 +1 +2 +3

What was the speakers own position on the topic of ESP as an actual reputable phenomenon, <u>according to his speech</u> ? (Speakers point of view)

___/ ___/ ___/ ___/ ___/ ___/ ___/ ___/ ___/ ___/ ___/
-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

SPEAKER DEFINITELY DISBELIEVES IN ESP — NEITHER -NOR — SPEAKER DEFINITELY BELIEVES IN ESP

PSYCHOLOGY CLASSES ONLY

Since we are interested in having student participation in the debates, we would like to know how familiar, in general people at the college are with the topic of ESP. Whether or not you read the article on ESP, please answer the following questions as best you can.
If you absolutely cannot answer a question, place an X in the box.

/___/ Mental control over matter is called (a) precognition, (b) telepathy (c) PK, (d) clairvoyance

/___/ The fact that "believers" get more successful results in psi experiments than "nonbelievers" is evidence that:
(a) psychic phenomena are easily disturbed by hostile thoughts
(b) non-believers are not as careful in their methods
(c) believers are open to error in their eagerness to get results
(d) they have found a true phenomenon

/___/ Psychokenesis is usually demonstrated on (a) horses, (b) dice (c) cards (d) has never been demonstrated

/___/ Scientific research on the topic
(a) should definitely prove the existence of ESP
(b) should help settle the question of the existence of ESP
(c) should definitely <u>disprove</u> the existence of ESP
(d) is useless because of the nature of ESP

/___/ Psychic research uses methods similar to (a) physics, (b) chemistry (c) psychology, (d) more than one of these.

/___/ A person with psychic powers is usually called (a) a mystic (b) a sensitive (c) a swami, (d) a mutant

/___/ The scientific study of psychic phenomena (a) has never been attempted (b) has been going on for the past 20 years, (c) has been going on for the past 40 years (d) has been going on for the past 400 years.

/___/ Psychic powers are usually effective (a) over large distances, (b) over small distances (c) only in the next room , (d) not really effective at all.

/___/ The "basic limiting principles" refers to (a) techniques of mediums, (b) scientific principles (c) proof of the existence of ESP (d) none of these

/___/ Science can explain (a) all , (b) most (c) some , (d) none , of the evidence gathered by the psychic researchers.

Appendix B
TABLE 1

T x I x S Analysis of Variance of
Author Evaluation Score
Control Groups

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	44.666		
Initial Opinion (Ext vs Mod)	1	55.644	1.198	
Source (Hi vs Lo)	1	2382.402	51.297	<.001
T I	1	25.506		
T S	1	0.265		
I S	1	24.628		
T I S	1	17.891		
Within SS (error)	35	46.442		

Appendix B
TABLE 2

Intercorrelation of Attitude Measure Semantic Scales with SR and Importance, 2PT and 1PT Control Groups.

2PT condition	SR/Imp/ *	True/	Honest/	Prob/	Exist/	Immed-after Attitude total /
Self Rating(SR)	-.35	.64	.57	.51	.62	.65
Importance		-.52	-.40	-.65	-.59	-.60
True			.65	.82	.80	.92
Honest				.66	.70	.83
Probable					.82	.93
Existant						.92
Immediate-after Total Attitude Score						

1PT condition	SR/ Imp / **	True/	Honest/	Prob/	Exist/	Delayed Attitude total
Self Rating (SR)	-.44	.45	.57	.58	.49	.59
Importance		-.45	-.52	-.45	-.42	-.50
True			.82	.56	.54	.95
Honest				.48	.84	.89
Probable					.59	.73
Existant						.96
Delayed test total Attitude Score						

* 2PT : @ 20df p <: .05= .36; .01= .49; .005= .54

** 1PT : @23 df p <: .05= .34; .01= .46; .005= .51

Appendix B

TABLE 3

Mean Self Rating Scores (SR)#

I	Source	3 exposures	2 exposures	1 exposure	Control
2PT condition					
Ext					2.09 (11)
	Hi	2.250(8)*	1.400 (10)	2.555 (9)	
	Lo	1.857 (7)	2.000 (10)	2.100 (10)	
	Anon	2.250 (8)	2.500 (10)	2.222 (9)	
Mod					5.000 (11)
	Hi	5.266 (15)	4.909 (11)	5.000 (10)	
	Lo	4.833 (12)	5.400 (10	5.222 (9)	
	Anon	4.818 (11)	5.250 (12)	5.090 (11)	
1PT condition					
Ext					1.750 (8)
	Hi	1.923 (13)	2.100 (10)	1.777 (9)	
	Lo	1.750 (8)	1.428 (7)	2.166 (12)	
	Anon	2.444 (9)	2.000 (6)	1.642 (14)	
Mod					5.353 (17)
	Hi	4.444 (9)	5.428 (7)	5.222 (9)	
	Lo	5.100 (20)	5.000 (10)	5.181 (11)	
	Anon	5.200 (15)	5.454 (11)	5.222 (9)	

* Cell N

\# The lower the score the more favorable to a belief in ESP (more opposed to the communicator's position)

Appendix B
TABLE 4

T x I x E x S Analysis of Variance of
Mean Self Rating (SR) Scores of
Experimental Groups

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	0.466		
Initial Opinion (Ext vs Mod)	1	842.609	1067.703	<.001
Exposures (1 vs 2 vs 3)	2	0.400		
Source (Hi vs Lo vs Anon)	2	1.084		
T I	1	1.358		
T E	2	0.189		
T S	2	0.081		
I E	2	1.490		
I S	2	0.459		
E S	4	0.775		
T I E	2	0.563		
T I S	2	0.458		
T E S	4	2.448	3.102	<.025
I E S	4	0.387		
T I E S	4	0.754		
Within SS (error)	335	0.789		

$\overline{nh}$ = 9.742

Appendix B
TABLE 5

Means of Significant Main effects and Interaction effects in Analysis of Variance of Self Rating Scores (Table 4 Appendix B)

T E S Interaction

T	Source	3 exposures	2 exposures	1 exposure
2PT Condition				
	Hi	3.696	3.154	3.778
	Lo	3.345	3.200	3.661
	Anon	3.534	3.875	3.615
1PT Condition				
	Hi	3.184	3.764	3.500
	Lo	3.425	3.214	6.674
	Anon	3.822	3.727	3.432

Main Effect of Initial Opinion

Ext 2.013

Mod 5.113

Appendix B
TABLE 6

Mean "Pleasantness of participating in Experiment" Ratings #

I	Source	3 exposures	2 exposures	1 exposure	Control
2PT condition					
Ext					1.727 (11)
	Hi	2.500 (6) *	3.375 (8)	3.000 (8)	
	Lo	2.166 (6)	2.555 (9)	2.800 (10)	
	Anon	3.750 (8)	3.500 (10)	2.666 (7)	
Mod					2.363 (11)
	Hi	3.142 (14)	3.363 (11)	3.100 (10)	
	Lo	3.090 (11)	2.666 (9)	3.111 (9)	
	Anon	3.727 (11)	3.083 (12)	2.636 (11)	
1PT condition					
Ext					2.875 (8)
	Hi	2.750 (12)	4.100 (10)	3.111 (9)	
	Lo	3.875 (8)	3.571 (7)	2.916 (12)	
	Anon	3.285 (7)	2.333 (6)	3.714 (14)	
Mod					3.000 (16)
	Hi	3.625 (8)	3.714 (7)	3.000 (9)	
	Lo	3.631 (19)	2.800 (10)	3.000 (11)	
	Anon	3.714 (14)	3.500 (10)	2.888 (9)	

* Cell N

\# The lower the score the more pleasant the rating (1="pleasant"; 7="unpleasant")

Appendix B
TABLE 7

T x I x E x S Analysis of Variance of
Mean Pleasantness Scores

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	7.185	3.762	< .10
Initial Opinion (Ext vs Mod)	1	0.853		
Exposures (1 vs 2 vs 3)	2	2.347		
Source (Hi vs Lo vs Anon)	2	1.739		
T I	1	0.496		
T E	2	0.319		
T S	2	2.134		
I E	2	2.303		
I S	2	0.147		
E S	4	3.701		
T I E	2	0.468		
T I S	2	2.385		
T E S	4	3.061		
I E S	4	1.431		
T I E S	4	1.779		
Within SS (error)	318	1.910		

$\overline{nh}$ = 9.224

Appendix C

TABLE 1

I x E x S Analysis of Variance of
Delayed Attitude Scores
IPT condition

Source	df	MS	F	p
Initial Opinion (Ext vs Mod)	1	729.372	34.134	<.001
Exposures (1 vs 2 vs 3)	2	51.854	2.427	<.10
Source (Hi vs Lo vs Anon)	2	29.576		
I E	2	36.415		
I S	2	74.648	3.493	<.05
E S	4	32.129		
I E S	4	14.517		
Within SS (error)	171	21.368		

$\underline{\bar{nh}} = 9.661$

Appendix C
TABLE 2

Means of Significant Main effects and Interaction effects in ANOVA of Delayed Attitude Scores (Table 1,Appendix C)
IPT condition

Initial Opinion x Source Interaction

	Hi	Lo	Anon	Control*
Ext	11.38	11.83	10.55	7.75
Mod	13.62	15.25	17.18	14.76

Exposure

3 exposure	2 exposure	1 exposure	Control*
12.71	14.40	12.81	12.52

* Control group means added for comparison purposes only

Appendix C
TABLE 3

I x S Analysis of Variance of
IPT Delayed Attitude Scores of
One Exposure Groups

Source	df	MS	F	p
Initial Opinion (Ext vs Mod)	1	479.660	33.799	<.001
Source (Hi vs Lo vs Anon)	2	12.888		
I S	2	26.450	1.863	
Within SS (error)	58	14.191		

Appendix C
TABLE 4

T x I x E x S Analysis of Variance of
2PT and 1PT Delayed Attitude Scores

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	60.948	2.595	<.10
Initial Opinion (Ext vs Mod)	1	1285.490	61.061	<.001
Exposures (1 vs 2 vs 3)	2	37.630		
Source (Hi vs Lo vs Anon)	2	23.292		
T I	1	6.244		
T E	2	16.903		
T S	2	32.926		
I E	2	17.784		
I S	2	49.702	2.370	<.10
E S	4	41.315	1.962	<.10
T I E	2	26.858		
T I S	2	27.246		
T E S	4	9.658		
I E S	4	13.944		
T I E S	4	12.361		
Within SS (error)	335	21.052		

$\overline{nh} = 9.742$

Appendix D
TABLE 1

Mean Delayed Test Author Evaluation Scores #

I Source	3 exposures	2 exposures	1 exposure
2PT condition			
Ext			
Hi	24.167 (6) *	18.000 (8)	22.667 (6)
Lo	23.200 (5)	21.000 (10)	29.571 (7)
Anon	28.500 (8)	23.556 (9)	22.800 (5)
Mod			
Hi	21.467 (15)	22.125 (8)	22.200 (5)
Lo	21.818 (11)	22.100 (10)	22.200 (5)
Anon	23.778 (9)	20.417 (12)	25.875 (8)
1PT Condition			
Ext			
Hi	22.750 (12)	18.875 (6)	30.200 (5)
Lo	21.625 (8)	26.286 (7)	24.667 (9)
Anon	23.000 (8)	26.167 (6)	25.455 (11)
Mod			
Hi	22.250 (6)	25.800 (4)	21.429 (7)
Lo	22.211 (19)	26.500 (8)	24.273 (11)
Anon	21.867 (15)	18.222 (9)	24.429 (7)

* Cell N

\# The lower the score the more favorable the evaluation

Appendix D
TABLE 2

T x I x E x S Analysis of Variance of
Delayed Author Evaluation Scores

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	58.769		
Initial Opinion (Ext vs Mod)	1	156.456	2.930	<.10
Exposures (1 vs 2 vs 3)	2	83.100		
Source (Hi vs Lo vs Anon)	2	0.654		
T I	1	3.925		
T E	2	142.317	2.666	<.10
T S	2	80.682		
I E	2	24.811		
I S	2	16.578		
E S	4	31.208		
T I E	2	40.233		
T I S	2	43.156		
T E S	4	25.411		
I E S	4	116.459	2.181	<.01
T I E S	4	42.852		
Within SS (error)	271	53.388		

$\underline{\bar{n}h} = 7.566$

Appendix D
TABLE 3

Means of Significant Main effects and Interaction effects in ANOVA of Delayed test Author Evaluation Scores (Table 2,Appendix D)

Initial Opinion

Ext	24.302
Mod	22.786

Initial Opinion x Exposure x Source Interaction

		3 exposure	2 exposure	1 exposure
Ext	HI	23.455	20.916	26.433
	Lo	22.412	23.642	27.118
	Anon	25.750	24.861	24.127
Mod	HI	21.858	24.562	21.814
	Lo	22.014	24.300	23.236
	Anon	22.822	19.319	25.152

Tests x Exposure Interaction

	3 exposure	2 exposure	1 exposure
2PT	23.821	21.199	24.219
1PT	22.284	24.668	25.075

Appendix E
TABLE 1

Mean "Strength of speaker's case" Ratings #

I	Source	3 exposures	2 exposures	1 exposure
2PT condition				
Ext				
	Hi	2.875 (8) *	2.700 (10)	4.000 (8)
	Lo	3.428 (7)	3.100 (10)	3.200 (10)
	Anon	3.625 (8)	3.400 (10)	3.222 (9)
Mod				
	Hi	3.600 (15)	3.000 (11)	3.400 (10)
	Lo	3.416 (12)	2.555 (9)	3.444 (9)
	Anon	3.272 (11)	3.333 (12)	3.090 (11)
1PT condition				
Ext				
	Hi	3.692 (13)	3.300 (10)	3.222 (9)
	Lo	2.875 (8)	3.428 (7)	3.500 (12)
	Anon	3.250 (8)	3.166 (6)	3.571 (14)
Mod				
	Hi	3.444 (9)	4.142 (7)	2.777 (9)
	Lo	3.050 (20)	3.200 (10)	3.545 (11)
	Anon	2.857 (14)	2.636 (11)	3.555 (9)

* Cell N

\# The lower the score the stronger the rating
(1= strong; 7= weak)

Appendix E

TABLE 2

T x I x E x S Analysis of Variance of
Mean "Strength" Ratings

Source	df	MS	F	p
Tests (2PT vs 1PT)	1	0.081		
Initial Opinion (Ext vs Mod)	1	0.407		
Exposures (1 vs 2 vs 3)	2	1.327		
Source (Hi vs Lo vs Anon)	2	0.458		
T I	1	0.034		
T E	2	1.694		
T S	2	0.777		
I E	2	0.148		
I S	2	0.860		
E S	4	0.262		
T I E	2	0.321		
T I S	2	0.111		
T E S	4	4.487	2.139	
I E S	4	1.961		
T I E S	4	0.780		
Within SS (error)	331	2.098		

$\overline{nh}$ = 9.628