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THE EFFECT OF CONTRADICTORY SUBLIMINAL STIMULI AND SENSITIZATION THERETO UPON VIEWERS' PERCEPTIONS OF VIDEO TAPED TESTIMONY

presented by

Henry Edward Nicholson

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Communication

Gerald R. Miller

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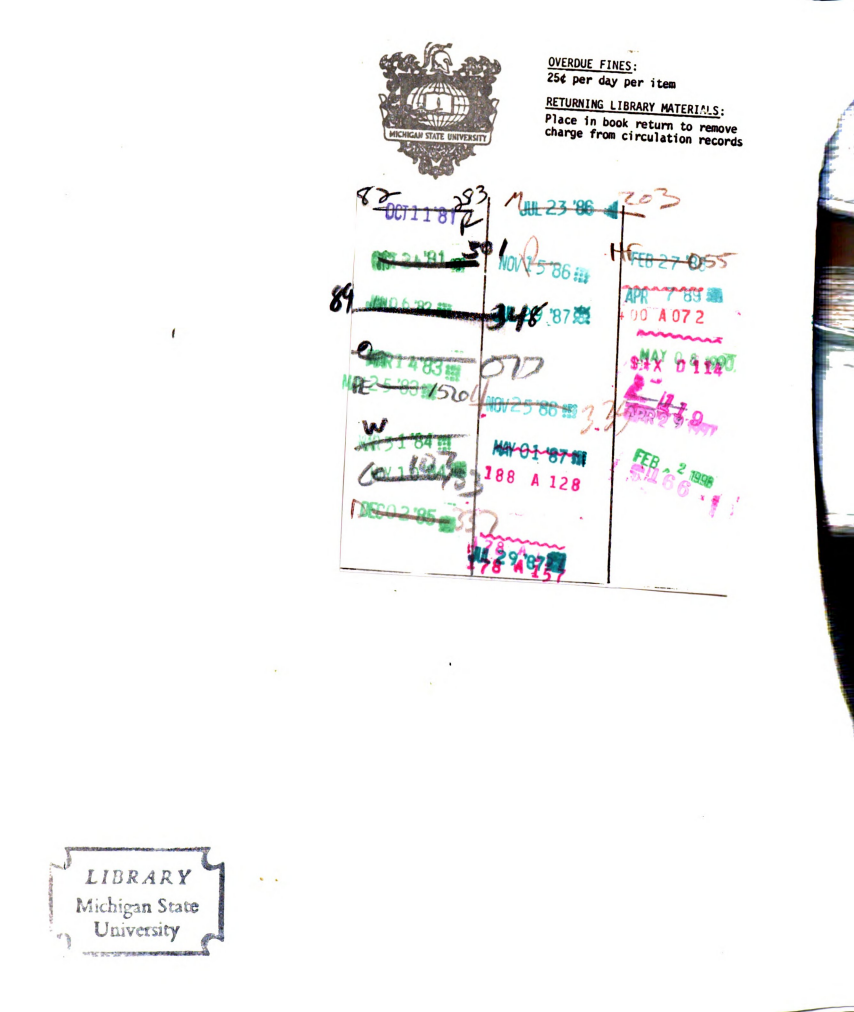
Date July 13, 1979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THE EFFECT OF CONTRADICTORY SUBLIMINAL STIMULI AND SENSITIZATION THERETO UPON VIEWERS' PERCEPTIONS OF VIDEO-TAPED TESTIMONY

By

Henry Edward Nicholson

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Communication

1979

Accepted by the faculty of the Department of Communication, College of Communication Arts, Michigan State University, in partial fulfillment of the requirements for the Doctor of Philosophy degree.

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ABSTRACT

THE EFFECT OF CONTRADICTORY SUBLIMINAL STIMULI AND SENSITIZATION THERETO UPON VIEWERS' PERCEPTIONS OF VIDEO TAPED TESTIMONY

By

Henry Edward Nicholson

The use of video taped testimony in legal proceedings provokes the question of whether viewers' perceptions are alterable by superimposition of subliminal messages on such tapes. An experimental study was designed to investigate this question. Persons eligible for jury duty were used as subjects and were measured for authoritarianism and misanthropy, traits which prior research suggests may be related to sensitivity to subliminal stimulation. Pre-tests were conducted to establish two subliminal levels of superimposed stimulus recognizability and to identify several items of testimony in a video taped deposition which were intrinsically equivalent in terms of viewer retention, belief and perceived importance. Four video tapes were produced which were identical in testimony content but which contained visual, testimony-contradicting messages superimposed over fourteen items identified in the pre-test. The intensity of the superimposed stimuli was different in each of the four tapes. One each contained the messages at

low subliminal, moderate subliminal, supraliminal, and zero (control) intensity levels.

Each tape was viewed by two jury-size groups of subjects, one sensitized to the presence of the messages, and one not sensitized. Individual, post-viewing questionnaires were administered which measured viewers' retention, belief, and perceived importance of each of the fourteen key testimony items, the perceived credibility of the witness, attitude toward participation in the study, and awareness of the superimposed stimuli.

The reactions of subjects in the subliminal conditions were not found to be different from those of subjects in the control (no message) conditions. Subjects in the supraliminal conditions exhibited significantly lower belief of testimony and significantly more positive attitude toward participation than did other subjects. Sensitization to the presence of the stimuli was found to significantly decrease belief and increase perceived importance of the testimony. No significant relationships were found between the personality measures and any dependent variable.

The findings suggest that video taped presentations of testimony can be made to juries without adverse effects from subliminal messages.

ACKNOWLEDGEMENTS

To properly acknowledge the contributions of others to a complex undertaking involving many persons is nearly impossible, but not to attempt is unforgiveable. This study was possible because of the help given by the persons mentioned below and many others unnamed.

To the students, faculty and staff in the Communication Program and the Media Department at Sangamon State University, whose cooperation and participation made the study possible, I offer my delayed thanks.

To the members of my graduate advising committee, Dr. Erwin Bettinghaus, Dr. Edward Fink and Dr. Barbara Riemer, who have patiently and ably taught and advised me, I extend my gratitude and a maturing appreciation of their efforts.

To Dr. Gerald Miller, my adviser, mentor and friend, who shaped my abilities and understanding by academic cohabitation, I owe a debt I can repay only by imitation.

With my wife, Marcia, who inspired me to work and criticized, edited and typed the product of that inspiration, I share the joy and reward of its completion.

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I. REVIEW AND DISCUSSION OF RELEVANT RESEARCH

Introduction

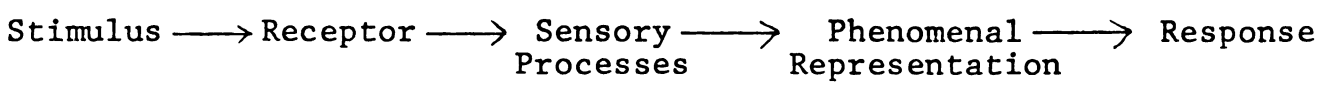
The increasing use of video tape as a medium for the transmission of evidence to juries in legal proceedings (McCrystal, 1971, 1972; Morrill, 1970) raises some serious unanswered questions concerning implementation. Among these problems is the potential for misuse through surreptitious "doctoring." The recorded video and audio format potentially permits the addition of messages, directions, or suggestions at levels of perceptual intensity which do not allow conscious recognition but which may possibly produce undesireable behavioral effects. The issue of whether and how low level or subliminal stimuli affect persons is one which is important in the context of legal applications of video recording, and empirical evidence could facilitate the implementation of video transcription of testimony which has been shown to be potentially useful in prior research (Miller, Bender, Florence and Nicholson, 1974).

The purpose of this research was to investigate the effects of subliminally and supraliminally presented stimuli upon the perceptions, attitudes, and information retention of persons who viewed video-taped testimony in a situation similar to that which might be encountered in courtrooms where such transcriptions are employed.

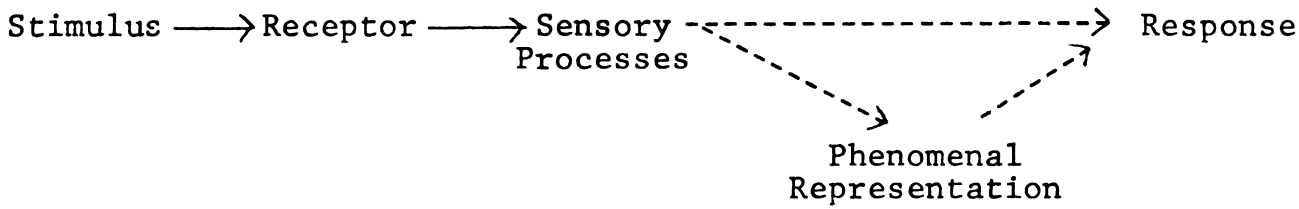
Response Without Awareness of Stimulus

A review of literature pertaining to subliminal stimulation reveals a multitude of definitional paradoxes and empirical conflicts. The basic theoretical underpinning of subliminal stimulation is what is called the parallel processing view of perception. According to this viewpoint, sensory processes in the organism may directly lead to a response without producing phenomenal representation. The contrasting series processing viewpoint holds that phenomenal representation is a necessary link between the sensory processes and a response to a stimulus. A schematic diagram of these contrasting viewpoints is provided in Figure 1 on page 3.

Among the ramifications of the parallel processing viewpoint is the possibility that a person may respond behaviorally to stimuli of which s/he is not aware. Numerous studies appear to justify such a conclusion.



a. Series Processing



b. Parallel Processing

Figure 1. Schematic models of (a) Series Processing and (b) Parallel Processing. (from Dixon, 1971)

Bressler (1931) created an optical illusion (the Müller-Lyer illusion) in which the arrowheads critical to the perceptual processes causing the illusion nearly matched their background. The subjects judged one line longer than the other (the illusion effect) at subliminal contrast levels and this tendency increased at supraliminal contrast levels. His subjects were asked to draw what "they had seen" after the experiment; none drew the arrowheads when these had been presented subliminally (Dixon, 1971, p. 40).

Bevan and Pritchard (1963) observed that subliminal stimuli interjected into a supraliminal series act to increase judged intensity of the succeeding members of the series. This "anchoring effect" was found to be stronger for lower intensity rather than higher intensity subliminal anchors (Dixon, 1971, pp. 34-7).

Studies of "perceptual defense" appear to support the notion of parallel processing. Postman, Bruner and McGinnies (1948) have suggested that lower order sensory processes (or early stages of perception) may act to inhibit higher order processes (such as conscious recognition) from occurring. In support of this, McGinnies and Adornetto (1952) found that subjects exhibited higher visual thresholds for taboo words than for neutral words.

Bootsin and Natsoulas (1965) selected subjects for their tendency (or absence of the tendency) to repress emotionally disturbing material. The subjects then generated idiosyncratic lists of both neutral and anxiety-arousing words. The subjects were then asked to choose from pairs occurring in this list matched in initial letter, length, frequency of usage and emotional loading, words which matched subliminal presentations. Their findings show a higher response accuracy for neutral than for anxiety-producing words, which they argue cannot be explained by word length, stimulus duration or response bias. Their results, however, only hold for the longer of two presentation times they employed and thus may be explainable in terms of conscious perception and associated response bias.

Alternative Explanations of Subliminal Stimulation

Two major criticisms have been raised concerning experimental evidence which appears to demonstrate responses contingent upon stimuli of which the respondent is not aware. The first criticism is what is called the partial cue hypothesis. Proponents of this viewpoint suggest that the stimuli which elicit the reported behavioral responses are not in fact subliminal. In other words, while a stimulus may be of low intensity or

duration, or even below a previously measured threshold, such a stimulus may not totally escape the subject's conscious perception. The form and/or content may be partially perceived, reconstructed and responded to by the subject (Dixon, 1971, pp. 233-41). Given the standard psychophysical model of perceptual thresholds, i.e. "that low stimulus quantity that arouses a response fifty percent of the time" (Guilford, 1954, p. 22), it is not unreasonable to hypothesize that at intensity levels slightly below the fifty percent awareness mark stimuli are perceptible partially or at times. Calvin and Dollenmayer (1959), for example, found no evidence in their study to support behavioral effects of subliminally presented stimuli, but reported a positive correlation between stimulus exposure time and related behavioral responses, which lends some support to the partial cue hypothesis./

In their review of ten separate studies of subliminal perception, Naylor and Lawshe (1958) found positive results occurred only when the possibility of partial cues was uncontrolled and found only negative results when such control was exercised.

[The other major focus of criticism of studies in subliminal stimulation attacks the methodology of such studies. It is perhaps best summarized by Goldiamond (1958) who asserts that the typical research in the area

employs two quite different indicators of perception. One, which does not permit an a priori method of correction for chance congruence, he labels semantic; the other, for which chance congruence can be corrected by considering alternatives to the correct answer, he labels accuracy. According to Goldiamond, the typical subliminal perception study contains two parts in which the reporting of perceptual awareness is important. The first part is in threshold determination, where typically a yes-no scale is employed denoting awareness or non-awareness of the presented stimulus. The second part is subsequent to responding to stimuli, where the scaling and elicitation of responses is more varied and, in fact, may have no formal structure. The discrepancy between the two types of perceptual indicators, he contends, may produce spurious, artifactual results. He states:

> These discrepancies (between indicator scores) can be functions of pairing an apparently valid indicator with one made less sensitive by admitting invalidating variance, or by using procedures which artificially inflate thresholds and thereby make it appear that processes related to the receipt of information are going on at below-threshold levels (1958, p. 405).

Criteria for Subliminality

Guilford's (1954, p. 22) definition of a threshold or limen as a "stimulus quantity which arouses a response fifty percent of the time" requires some refinement in application to subliminal stimulation because response ambiguously refers to verbal report of stimulus awareness as well as to stimulus-related, post-stimulus behavioral change without awareness. One scholar (Dixon, 1971, pp. 12-13) suggests three instances as situations in which subliminal stimulation can be said to have occurred:

(1) behavioral response to a stimulus, the intensity or duration of which is less than that at which the responding subject ever reported awareness;

(2) the subject exhibits behavioral response to a stimulus of which he pleads total unawareness;

(3) the subject reports he is being stimulated but denies knowledge of what the stimulus is.

To employ the first instance in a research setting would require extensive individual subject testing to establish a lower limit of stimulus awareness. The level so established is subject to change even after such testing, and the method almost insures that stimuli employed will be of extremely low level and thus may not be so efficacious in producing effects as stimuli nearer the standardly defined limen level. The third instance

seems particularly prone to error from response bias and demand characteristics. The second, while open to the same type of error, is at least minimally adaptable to experimental application.

Dixon (1971, p. 18) offers a further suggestion as a criterion for establishing that subliminal stimulation has occurred, namely, the occurence of contingent responses without awareness that differ qualitatively from those elicited by the same stimulus when presented supraliminally. In other words, if different response types or trends can be observed among persons who have been exposed to the same stimulus at levels above and below perceptual thresholds, such observations can be taken as strong evidence that subliminal stimulation has occurred. The key term in Dixon's formulation is, of course, contingent. The responses observed in both groups must be contingent upon or related to the stimulus. This criterion will be applied in later chapters as an aid in interpreting results of this study.

Personality Variables and Subliminal Stimulation

Another area which has received attention in the research literature is that of personality and individual variables which are associated with findings of behavioral effects from low-level stimulation. This area is interesting for numerous theoretical reasons. In terms

of the present research problem, any information which would allow for a prediction of sensitivity to low-level stimuli or of a predilection toward certain behavioral effects would be of immense practical and theoretical value.

The reader may question the validity and the utility of a discussion of correlates to a phenomenon whose very existence is problematic. The inclusion of this discussion is not intended to lend unearned credence to such findings but rather to examine them for possible inclusion in a research design to test their efficacy.

Shevrin, Smith and Fritzler (1969), in a study which measured several psychophysical variables, found data consistent with the tendency for repressive individuals to be relatively insensitive to subliminal stimulation. Eagle (1962), in his review, reports that subjects sensitive to subliminal suggestion were found to be more psychologic-minded and to possess greater empathy, and to be better able to deal with unstructured situations than were their less sensitive counterparts. Gordon (in Dixon, 1971, p. 100) found that subjects drawn from arts departments, as opposed to those from science and engineering departments, were better able to guess the identity of subliminally presented words and showed a

greater tendency to respond to the meaning of those verbal stimuli on semantic differentiation scales.

Klein (1959) found rigidity more apparent in subliminally insensitive subjects than in sensitive ones. Smith, Spence and Klein (1959) found flexibility in responses to the Thematic Apperception Test (TAT) to be positively related to sensitivity to subliminal stimuli.

With respect to situational factors inherent in courtroom applications of video technology, two studies offer relevant conclusions. Eagle (1962), based upon his own data and upon results from other studies, concluded that the occurrence of subliminally stimulated effects will be facilitated by dispersed attention or relaxation, a state in which reality testing is held in abeyance, response tasks which allow subjectivity rather than logic as a basis, and unstructured or unclear stimuli. Whether a courtroom situation is one in which we would find such characteristics is, of course, debatable. One would expect that such behaviors as focused attention and objective examination of evidence are aspired to and adequately reinforced in the courts.

Goldstein and Barthol (1960), who showed that subliminally presented verbal stimuli affected subjects' responses to TAT cards only when the pictures thereon were

blurred, explained their findings by saying that the cards themselves are extremely emotionally biased. Again, in the typical courtroom situation one would expect strong emotional undertones to be inherent in the proceedings, which could diminish any effect of subliminal messages.

The Focus of the Study

As stated earlier, the purpose of this study was to investigate the effects of subliminally and supraliminally presented stimuli, contained in a videotaped recording of a witness giving testimony, upon the perception of viewers of that testimony.

Specifically, it was intended that the research answer the following questions:

1. Are viewers' responses to videotaped testimony affected by subliminal messages in the tape which contradict the testimony?

2. Are viewers' responses to videotaped testimony affected by supraliminal messages in the tape which contradict the testimony?

3. Does sensitization to the possible presence of such messages affect viewers' responses to the taped testimony?

Moreover, based upon a literature review (Nicholson, 1976) it was expected that certain personality variables

might affect viewers' responses to taped testimony, either by themselves or in conjunction with the contradictory messages. The selection and employment of these variables is discussed in Chapter II.

In light of the research reviewed and outlined above, it was proposed that this study adhere to four criteria to insure adequate explanatory power and generalizability. These criteria are as follows.

1. Minimization of methodological artifacts. Within practical limits, efforts were made to make as congruent as possible in form and content the processes of threshold determination and subsequent verification of non-verification of stimulus awareness. To the extent that this congruence exists, the researcher can be assured that artifacts resulting from differences in perceptual indicators is minimized. In this regard, the video tape of testimony used in the experiment proper was also employed as the background for stimulus presentation in the threshold determination procedure. In addition, the structure and preparation of subject groups (including pre-testing for personality measures) were similar.

To reduce the possibility of demand characteristics inherent in the experimental situation and of response bias on the part of the subject combining to suppress reported awareness of the stimuli or to spuriously

produce effects, it was decided to sensitize half of the subjects to the potential presence of the stimuli.

2. Presentation of stimuli at several levels of intensity. In addition to showing the strength and shape of any relationship between subliminal message presentation and viewer response, the inclusion of more than one level of stimulus intensity, including one which was patently supraliminal, was expected to:

a. indicate the effect of "foreign" supraliminal stimuli upon viewers' responses, and

b. aid in determining the validity of various theoretical explanations of the outcomes.

3. Classification of subjects according to personality correlates of sensitivity to subliminal stimulation. A summary of the research literature in this area would indicate that persons sensitive to subliminal stimulation tend to empathic, people-oriented, flexible and non-authoritarian. By pre-measuring subjects for such traits, the relationship, if any, between these traits and relevant experimental responses can be evaluated.

4. External validity. Because of the applied nature of the research problem and the social importance of the results, considerable attention was paid to the generalizability of findings to the larger population of potential jurors. In this regard, subjects selected for

participation were screened to eliminate any persons who for reasons of citizenship, voter registration status or age were ineligible for jury duty.

Whether such a sample allows generalization of findings to a broader population is a pertinent question. The fact that potential jury members comprise a majority of the general adult population offers some reason for optimism. Further, this optimism is backed by some evidence from the pre-test phase of this study (see p. 30).

II. METHOD

Overview of Stimulus Preparation and Instructions

In an attempt to conduct the research in accordance with the criteria discussed in the last chapter, the procedure was as follows. A video tape recording was obtained which contained a re-enactment of a portion of a Michigan civil case which had been tried and decided some years before. The background of the trial is that John Hickson, a construction worker, had injured himself when he fell off the back of a delivery truck operated by Liquipane Fuel Services, Incorporated, as he was helping the driver to unload propane cylinders from the truck.[1] Three persons appear in the video recording. The driver of the truck, Robert Montague, is being interrogated by two actual attorneys, Edward Stein of Ann Arbor and Larry Owen of Lansing. The part of Mr. Montague is played by Phil Heald of Lansing, a professional actor. In the recording Mr. Stein plays the role of the attorney representing the plaintiff, John Hickson; Mr. Owen plays the role of representing the defendant, the propane company. In this twenty-two minute long recording,

[1] A complete transcript of the testimony will be found in Appendix A.

Mr. Montague answers questions, asked primarily by Mr. Stein, about the accident in which Mr. Hickson was injured.

This video recording will be referred to hereafter as the baseline stimulus tape (BST). It was the common content of each experimental condition. From this BST three other video tapes were made. Each of these three tapes contained fourteen visual presentations of the word "wrong" at pre-selected points, in such a way that they contradicted the ongoing testimony. The placement of this contradictory stimulus was identical in each tape; only the exposure of the superimposed stimulus varied. Thus in addition to the unadulterated BST, there were tapes containing testimony-contradicting stimuli at very low subliminal intensity, moderate subliminal intensity, and blatantly supraliminal intensity. The superimposed word was about half the width of the picture in length and was about one-fifth as tall as it was wide. Each presentation of the stimulus was made as the witness was responding to the interrogation.

The second independent variable employed was sensitization (or non-sensitization) of the viewers to the occurrence of "extraneous stimuli" in the recording. This was manipulated through the instructions given viewers before participation in the experiment. The

relevant portion of the instructions given all subjects participating in the study were as follows:

> The video tape you are about to watch contains the testimony of a Mr. Montague giving evidence in a civil liability case. In this tape he is questioned by two attorneys about the events surrounding an accident in which a Mr. Hickson is injured. This recorded testimony was actually used when the case was tried recently in Michigan. Please pay close attention to this recording as it is played; when it is finished I would like you to answer some questions about what you saw and heard. The purpose of this study is to help establish guidelines for the use of such testimony in future court trials.

For subjects in the sensitized condition, the instructions continued:

> In the original trial one of the attorneys objected to this taped presentation, claiming that it had been tampered with, and claimed it contained visual material damaging to the witness. Please be on the "lookout" for any such thing. Should you notice anything unusual in the recording please try to remember what it was and where you noticed it.

In all, there were eight experimental conditions. Each of four separate tapes (one control and one each at three levels of superimposed stimulus intensity) was presented to both sensitized and non-sensitized viewers. The placement and intensity of the superimposed stimuli were established by means of two separate pre-tests.

Selection of Key Testimony Items

The first of these pre-tests was conducted in order to find a series of factual items within the BST to

which viewers responded similarly in terms of information retention, belief, and importance. Forty-five factual items were extracted from the information presented in the BST and multiple choice questions were constructed for these items (see Appendix B). For each question, four choices were offered as answers.

The BST was shown to twenty-five persons, all registered voters in Sangamon County, Illinois (potential jury members). After viewing the entire tape, each viewer was given a questionnaire consisting of questions concerning the forty-five selected pieces of testimony. The questionnaires directed them to choose the answers which corresponded with the witness' testimony from among the four choices for each question; then they were asked to indicate whether or not they believed that particular item of testimony; then they were asked to indicate the relative importance of the item within the context of the whole testimony on a seven-point Likert-type scale. The results of the pre-test are shown in Table 13, Appendix C. In the table, retention and belief scores for the items are shown as the percentage of the 25 respondents answering the question correctly and the percentage of respondents indicating that they believed the item. The importance scores are shown as the mean score on the seven-point importance scale for the 25 respondents.

The items starred in the last column of the table were those chosen as stimulus items for the final stimulus tape preparation because of their similarity on the three scales used. The letters appearing in the last column indicate which scale(s) disqualified an item from consideration because of deviation from norms. The norms of the fourteen items are shown below.

Retention	20-25 respondents correct	(80-100%)
Belief	20-25 respondents believing	(80-100%)
Importance	4.72 to 6.16 mean importance rating	

The purpose for attempting to equalize scores for the final stimulus items was to reduce the effect of intrinsic factors on retention, belief and importance in the final presentation.

Threshold Determination

The second pre-test was performed in order to establish perceptual baselines for the superimposed visual stimulus (the word "wrong") and to assess the relationship between proposed measures of sensitivity to subliminal stimulation and the obtained threshold levels.

As indicated in Chapter I, it has been proposed that persons who are sensitive to subliminal stimulation tend to be empathic, people-oriented, flexible and

non-authoritarian. In order to efficiently measure this collection of traits a forty-item scale was composed consisting of twenty items each from the California F Scale (Adorno, Frenkel-Brunswik, Levinson and Sanford, 1950) and the Misanthropy Scale (Sullivan and Adelson, 1954).[2] These scales appear to be conceptually related with the qualities in question and offer efficiency of administration and objective scoring.

The forty-item instrument was administered to fifty respondents who then viewed a video recording which consisted of the BST over which the word "wrong" had been superimposed at intervals. The word flashed approximately every ten seconds at increasing exposures. The exposure ranged from .01 seconds (at f/5.6) at the beginning of the tape to 1.50 seconds (at f/4.0) at the end.[3]

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[2]This instrument is reproduced in Appendix D.

[3]The f/ values refer to the aperture of the camera lens through which the tachistoscopically presented stimulus was "shot" for superimposition onto the BST. A large number, e.g. f/22, refers to a small aperture; a small number, e.g. f/2, refers to a large aperture. Certain limitations of the tape and equipment necessitated the use of different camera apertures in order to achieve increasingly recognizeable stimuli. Among these were the duration of the answers the witness in the tape gave and the telltale flash on the screen which results from attempting to "shoot" a short duration exposure through a wide lens opening.

At forty equally timed intervals during the viewing, a signal was given for the respondents to note on a numbered list any unusual feature which they had noticed during the preceding thirty second interval. If they noticed nothing unusual during any interval they were to draw a line in the appropriately numbered space on their list. The purpose of this notation was to enable the experimenter to ascertain the first time the super-imposed stimulus was noticed by each viewer.

The subjects participating in this pre-test were nineteen men (38%) and thirty-one women (62%). They ranged in age from twenty-one to fifty-seven years. All were citizens of the United States and all but four (92%) were registered voters. The mean score for the fifty subjects on the misanthropy portion of the personality scale was 45.9 (possible range from 20 - 80, s.d. = 6.73). The mean score on the authoritarianism section was 47.2 (possible range from 20 - 80, s.d. = 6.04). Of the fifty subjects who viewed the tape, twenty-two reported the presence of the stimulus prior to the end of the tape. The results for each individual participating in the second pre-test are arrayed in Table 14, Appendix E.

No significant differences were found between the groups of people who did and did not notice the superimposed stimulus in terms of age (t = 1.82, df = 48, N.S.), sex (χ^2 = 0.64, df = 1, N.S.), authoritarianism (t = 0.56, df = 47, N.S.) or misanthropy (t = -0.21, df = 47, N.S.). Table 1 shows summary data for those respondents who noticed and did not notice the key stimulus.

Information gained in the second pre-test led to the selection of the following four levels of stimulus exposure for use in the final study:

Control	= No Exposure (Baseline Tape only)
Low subliminal	= .65 sec. at f/5.6 at selected answers
Moderate subliminal	= 1.3 sec. at f/4.0 at selected answers
Supraliminal	= 1.5 sec. at f/2.0 at selected answers

The low subliminal intensity corresponded to the point coincident with 5% recognition in the pre-test. The moderate intensity corresponded to roughly a 35% recognition level. Although there were not high enough levels of stimulus intensity in the pre-test tape to establish a 99% or higher recognition level, the intensity and duration chosen for that condition were sufficient to make the stimulus blatantly apparent.

Table 1. Characteristics of Respondents in re-test 2.

Characteristic	Persons who: did notice stimulus (n = 22)	did not notice stimulus (n = 28)	All (n = 50)
Sex:			
Male	7	12	19
Female	15	16	31
Registered voter:			
Yes	19	27	46
No	3	1	4
Age:			
Mean (years)	26.50	31.36	29.22
s.d.	4.89	11.71	9.58
Authoritarianism:			
Mean score	46.62	47.61	47.19
s.d.	4.82	6.87	6.04
Misanthropy:			
Mean score	46.10	45.68	45.86
s.d.	6.17	7.22	6.73

Experimental Procedures

Four video tapes were constructed accordingly. One, the control group tape, was the BST without addition or adulteration. The other three were made by copying the BST and superimposing at the fourteen points determined in pre-test one, the stimulus word "wrong" at the chosen intensity for that level. Prior to the instructions and viewing of the experimental tape, each viewer group was given a brief talk concerning the use of video tape in courtroom applications and it was explained that they were taking part in a three-part study. Before any hint was made as to the content of the tape, they were asked to respond to some "attitudinal questions," (Part 1). This questionnaire consisted of the same forty items taken from the California F scale and from the Misanthropy scale, used in the second pre-test. Each statement was accompanied with a four-point agreement/disagreement scale on which the subject expressed his own sentiment with reference to the item. Scores on each scale were totaled as in pre-test two using a scoring system allowing a minimum of one point and a maximum of four for each response. Thus the range of scores on each scale was from twenty to eighty.

Following the administration of this questionnaire, the experimental instructions were given (these included manipulation of sensitization), and the tape was presented (Part 2). Following the tape presentation the dependent variable measuring instrument was administered (Part 3).

Dependent Variable Measuring Instrument

The dependent variable measuring instrument consisted of several sections. The primary variable of interest was, of course, viewer belief of testimony because the experimental stimulus was a direct contradiction of the ongoing testimony. The belief of the subjects was measured in two ways. First, belief of individual key instances of testimony was measured. Second, perceived credibility of the witness was assessed.

Although the belief of the witness and testimony was central to the investigation, cognitive dissonance theory (Festinger, 1962) suggests that other effects may occur. If we assume that a subliminal stimulus is registered in the cognitive structure of the subject, we can expect the existence of a dissonant relationship (between the content of the testimony and that of the experimental stimulus). Theoretically the subject should be thereby motivated to reduce this dissonance. Although belief alteration is

one option available for this purpose--i.e., the subject does not believe the testimony thereby defusing the dissonance--other alternative are available. For example, the subject might forget the testimony item or change his/her opinion of its importance, or see the witness as generally unreliable in order to reduce the tension of the dissonant cognitive relationship. Accordingly, all these areas were measured.

The format of the instrument (see Appendix F) was as follows: age, sex, and voter and citizenship status were checked. Then, a three-part question was asked about each item of testimony in the tape which was associated with a superimposed stimulus. The first part tested recall of the factual testimony item with a four-foil multiple choice response form. In the second part, the subject was asked if s/he believed this item of testimony (yes or no). In the third part, the subject was asked to indicate the relative importance of this item of testimony to the overall testimony s/he had just witnessed. This last response was indicated on a seven-point Likert-type scale encompassing responses ranging from very unimportant through a neutral point to very important.

After the subject had provided reactions to the factual part of the testimony, s/he was asked to assess

the general credibility of the witness, Mr. Montague. For this purpose, the subject was offered seven semantic differential type scales bounded by polar adjectives relating to credibility. The subject was then asked whether s/he had seen or heard anything distracting, controversial, or damaging to the witness or his/her testimony. Seven categories of items including "word or phrase superimposed over picture" were offered to stir loose any conscious notice of surreptitious stimulation. As a final measure, three bi-polar, seven point scales were used to measure the subject's reaction to participating in the experiment.

The scoring of the credibility and subject reactions portions of the questionnaire was accomplished by assigning the numbers one through seven to the check points of each scale (higher numbers indicating the more positive pole) and summing the numbers corresponding to each subject's responses. These sums were then divided by the number of scales (seven for credibility, three for subject reaction to the experiment) to provide a mean score for each variable in the numerical range of one through seven.

Following the completion of the dependent measures instrument by the subjects, the experiment and subjects'

reactions were discussed briefly. The true purpose of the experiment was explained and subjects were asked not to discuss the experiment with anyone so that contamination of the subject pool could be avoided. No indication of prior knowledge of the study on the part of any subject was noticed by the experimenter during any phase of the experiment.

Subjects

Subjects participating in the various phases of the study were all chosen from Communication classes at Sangamon State University in Springfield, Illinois. Several factors were considered in this choice. One previously-defined criterion for subject selection was that of external validity, that is, participating subjects were to representative of persons potentially able to serve on trial juries. In Sangamon County, Illinois, jurors are selected from the latest available lists of registered voters. In other words, to qualify for jury membership one must be a United States citizen, over eighteen years of age, and registered to vote in Sangamon County.

Since Sangamon State University is largely a "commuter college" and offers a full complement of night

courses for working persons (mean student age is 29.4 years), it was judged that this captive population would efficiently and inexpensively provide potential jury members who would reasonably and adequately represent the larger county population. Further, the use of these subjects avoided the problems of recruiting subjects publicly with monetary rewards and of moving an elaborate set-up of technical equipment to various field locations.

All subjects participating in the study (whether pre-test phases or final experimental phase) were queried as to their citizenship and voter registration status. In the pre-test phase those persons meeting the qualifications for jury membership were compared to those who did not (four persons out of fifty in the second phase) on the basis of their responses to the stimuli. No significant differences were found. On the basis of these comparisons the responses of both groups were pooled and used for the establishment of stimulus intensity levels.

Because of the logistic and methodological problems associated with either running subjects individually or assembling ad hoc groups, subjects were run in groups as defined by class enrollment. Several precautions were taken to minimize effects of group interaction upon the individual responses. First, all experimental conditions were run during the first three weeks of semesters to

reduce effects caused by personal interaction over an extended period. Second, all measures of dependent variables were written responses made by the individual. No discussion among the subjects took place prior to the collection of the completed instruments by the experimenter. Third, because of the nature of the experimental procedures, subjects were physically arranged in a way which made interaction difficult. All were facing the same direction and quiet was maintained during the entire procedure. Their behavior was monitored throughout the procedure by the experimenter.

In the final experimental phase of the project only six of ninety-one subjects did not fit the criteria for jury membership. The responses of these persons were eliminated from the analyses. In addition, one subject indicated that she was personally involved in litigation resulting from an automobile accident. She was excluded from the experimental procedure.

A schematic diagram of the study, showing the number of subjects per cell, is presented in Figure 2.

Table 2 shows the mean age, mean authoritarianism scale score, mean misanthropy scale score and sex breakdown for each of the eight groups participating in the final portion of the study. The age and personality variable data were subjected to one-way

Table 2. Characteristics of Subjects in Final Experiment, by Group.

Group	n	Age mean	Age s.d.	Authoritarianism mean	Authoritarianism s.d.	Misanthropy mean	Misanthropy s.d.	Percent Female
Control, NS*	12	29.00	9.80	43.17	6.15	44.33	6.36	25%
Control, S	6	25.50	4.51	42.17	3.25	44.83	5.85	50%
Low sublim., NS	9	22.89	2.80	45.78	5.40	46.11	6.23	33%
Low sublim., S	9	22.44	2.13	47.67	5.07	45.33	4.42	33%
Mod. sublim., NS	13	30.38	6.53	43.08	4.63	40.31	3.71	54%
Mod. sublim., S	19	26.84	4.97	43.79	6.96	44.00	4.85	53%
Supraliminal, NS	8	29.25	9.87	51.50	4.69	46.50	5.35	25%
Supraliminal, S	8	24.50	4.47	49.13	5.74	48.00	6.68	50%
All combined	84	26.71	9.58	45.21	6.04	44.52	6.73	42%

*NS = Not Sensitized; S = Sensitized.

		Intensity of Experimental Stimulus				
		None	Low Sublim.	Mod. Sublim.	Supra-liminal	
Sensitized to Stimulus?	No	12	9	13	8	42
	Yes	6	9	19	8	42
		18	18	32	16	84

Figure 2. Schematic Diagram of Final Study with Cell Sizes

analyses of variance to determine whether significant differences existed among the groups on these measures. The results of these procedures are shown in Table 3. As the table indicates, the subject groups were found to differ significantly only on the authoritarianism measure ($F = 3.13$, $df = 7, 76$). The purpose of taking the authoritarianism (and misanthropy) measurements was to assess the influence of these variables in the process by which subjects responded to the experimental manipulations, and so these measures were planned to be included as predictors of subjects response. Thus this inter-group difference need not cause great concern, although its existence is noted.

Table 3. Subject Characteristics, Analysis of Variance.

Characteristic	SS_{bet}	SS_{err}	df	MS_{bet}	MS_{err}	F	p
Age	633.43	3033.71	7,76	90.49	39.92	2.27	>.01, N.S.
Authoritarianism	697.98	2421.01	7,76	99.71	31.86	3.13	<.01
Misanthropy	393.79	2183.16	7,76	56.26	28.73	1.96	>.01, N.S.

III. RESULTS

An Examination of Possible Outcomes

Before examining the results of the experimental phase of the study, some discussion of the variety and meaning of outcomes is in order. Using subjects' belief of testimony as the dependent variable and level of stimulus intensity as the independent variable, discussions of four general configurations of results will be presented. In each configuration it is assumed that the results are based upon responses of subjects who did not report seeing the stimulus in the control, low subliminal and moderate subliminal groups, and upon responses of subjects who did report seeing the stimulus in the supraliminal groups.

The first configuration, diagrammed in Figure 3, reflects no difference in subjects' belief of testimony across all four levels of stimulus intensity. Because belief remains unchanged across levels of intensity of the experimental stimulus, we can reasonably conclude that neither subliminal nor supraliminal presentations of the stimulus have any effect upon viewers' responses to the testimony.

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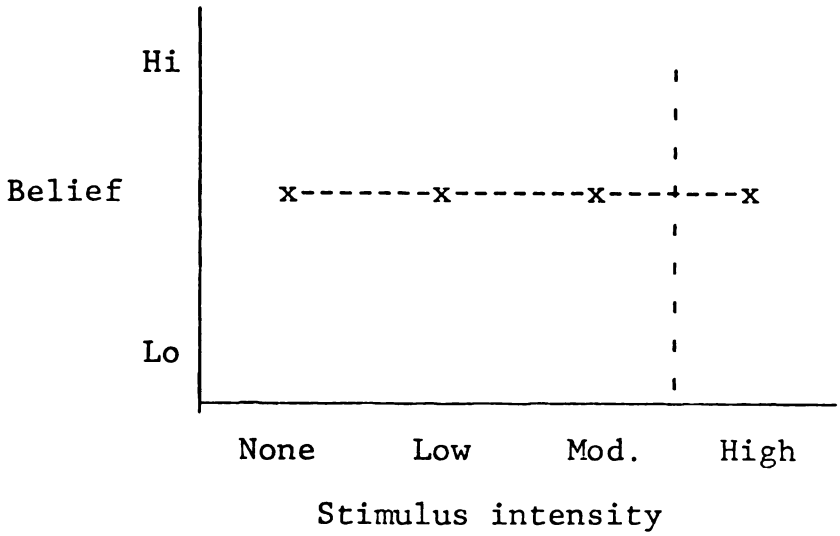

Figure 3. Outcome Schematic A.

The second type of outcome is that in which there are no differences in the dependent variable for subject groups shown below-threshold messages; however, subjects shown supraliminal messages exhibit a different response. In other words, subjects' belief of testimony is similar in all groups but the supraliminal.

In the supraliminal group, subjects may respond either of two ways. They may act in accordance with the suggestion of the message, that is, they may refuse to believe the testimony labeled "wrong," or they may react to the suggestion, affirming their belief of the testimony. In either case, two relationships among the data assert themselves. First, the subjects in the subliminal groups gnenerally respond as do the subjects in the control (no stimulus) groups. Second, the subjects in the

supraliminal groups respond differently than do the subjects in the subliminal groups. Because of this similarity between the subliminal and control groups and the dissimilarity between the subliminal and supraliminal groups, this outcome argues against the occurrence of subliminal stimulation.

The third type of outcome is that in which the dependent variable, belief of testimony, is a positive function of the level of stimulus intensity at below-threshold levels. The level of belief corresponding with the supraliminal level of stimulus intensity may continue the trend of the relationship or not. These

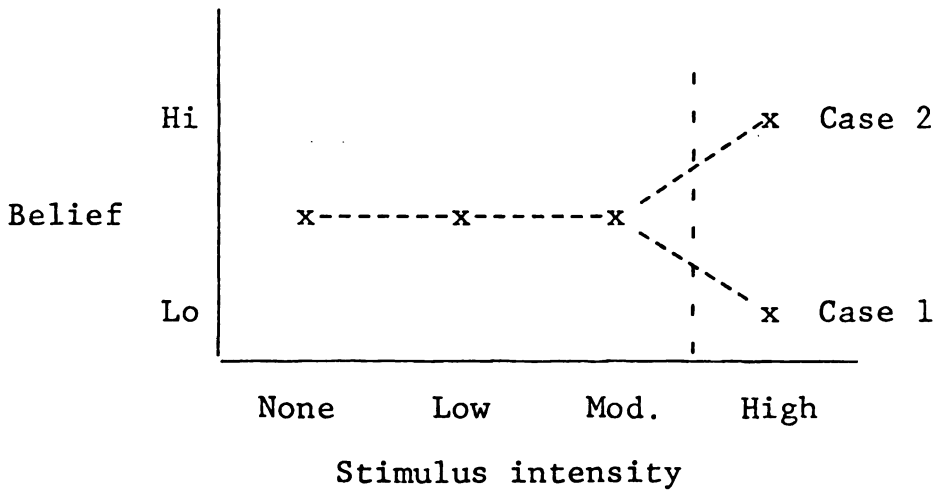

Figure 4. Outcome Schematic B.

outcomes are represented in Figure 5 below.

In these cases we can see that subliminally presented stimuli contradicting the testimony produce "reactive" responses. That is, belief is bolstered by the presence of messages suggesting disbelief. The more intense the messages, the stronger the belief. In Case 1 of Figure 5, since the subliminal groups' responses differ from the control group responses, and since the supraliminal group does not continue the established trend, the data strongly suggest that the subliminal messages are affecting viewer response (see Chapter I, p. 9). If we also find that stimulus awareness

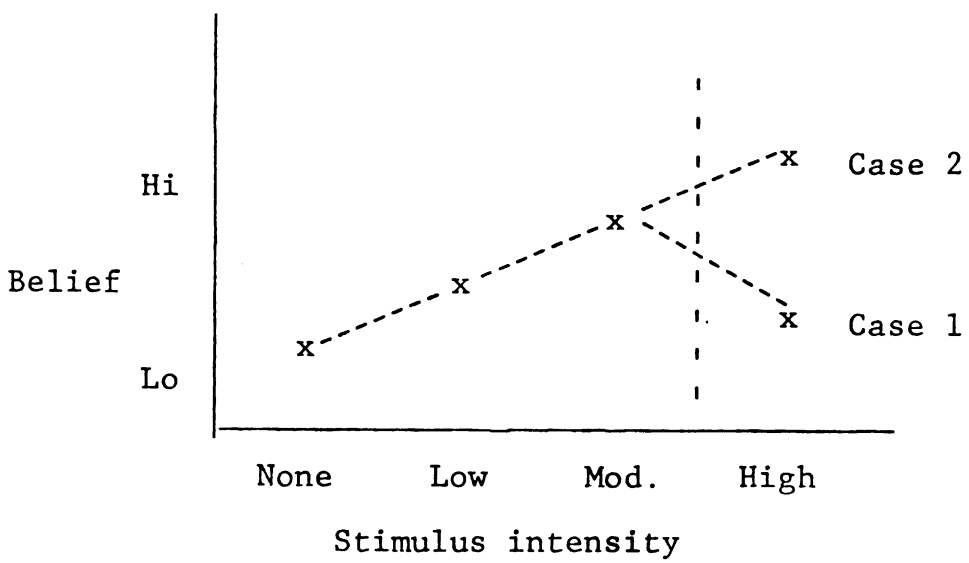

Figure 5. Outcome Schematic C.

rates in each subliminal group are lower than pre-testing would lead us to expect, we have evidence to suggest that perceptual defense is occurring.

In Case 2 of Figure 5, because the effects of the stimuli at supraliminal levels of intensity are similar in trend to the effects at lower levels, we need to consider more information to form an explanation. If we were to find that belief of testimony is related to reported recognition of the stimulus within each experimental group, and that the relationship is much less pronounced among those subjects reporting "non-awareness" of the stimulus, we can reasonably conclude that the outcome is a product not of unconscious stimulation, but rather of partial conscious stimulation. In other words, subjects tend to react (respond negatively) to the stimulus when they consciously perceive it. If, on the other hand, no difference in stimulus recognition rate is observed in the various groups, we must conclude that the effects are those of a non-conscious process, i.e., that subliminal stimulation has occurred.

The fourth outcome type is that in which increasing intensity of stimulus is associated with decreasing belief. In this scheme subjects are acting in accordance with the suggestion of the stimulus. As in the previous example, subjects exposed to supraliminally-presented

stimuli may continue the trend established by the other groups or may act differently. This configuration is diagrammed in Figure 6. In Case 1 of Figure 6, the monotonicity of the relationship implies either that subliminal stimulation has taken place (if the recognition rates for the sensitized and the non-sensitized groups offers no evidence that response suppression is occurring), or that the decreasing belief across conditions reflects increased consciousness but suppressed reporting of the stimulus (if the recognition rate varies with sensitization).

In Case 2, because of the difference in response

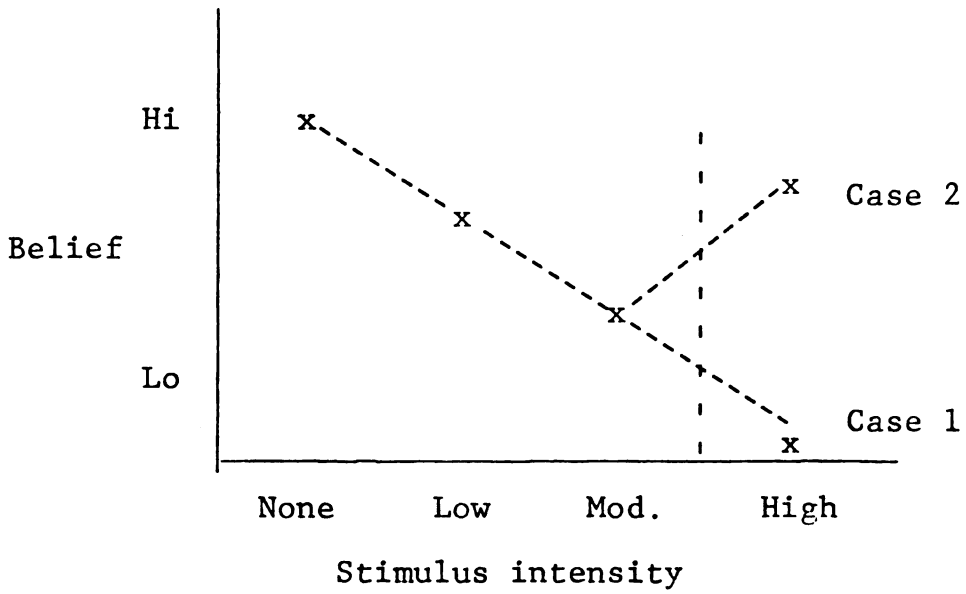

Figure 6. Outcome Schematic D.

exhibited by the subliminal and the supraliminal groups, the evidence suggests that subliminal stimulation is occurring.

In the preceding discussion, the dependent variable portrayed is belief of testimony. The use of other dependent variables such as retention of testimony or perceived importance of testimony would result in analagous arguments.

The outcomes discussed do not exhaust the possibilities for data configuration. More complex situations, e.g., those involving two or more response types within a group and thus involve a difference in variances rather than in means, are also possible.

The potential outcomes in relation to the sensitization variable are somewhat easier to interpret. The inclusion of a sensitized condition in the study was done primarily to assess the accuracy of self-reporting of stimulus recognition. If individuals tend to suppress reports that they have actually recognized low-level stimuli because of demand characteristics or uncertainty about the research environment, those groups which were sensitized (by suggesting that, in fact, the tape may contain such features) should show a higher rate of reported recognition than those not so sensitized.

Awareness of the Stimulus

Prior to the coding and analysis of the subjects' responses, the questionnaires were examined to check on the subliminal/supraliminal group distinction. Such examination showed that no subjects in a nominally subliminal (or control) group reported seeing a "word or phrase superimposed over picture." All members of nominally supraliminal groups reported seeing the stimulus and correctly identified the word. In those tapes in which it was presented, the experimental stimulus appeared fourteen times. However, subjects were not allowed to take notes during the viewing of the tape and were encouraged to pay close attention to the content; therefore, it was felt that reports of seeing the stimulus fewer than fourteen times might reflect adequate and perhaps full recognition of its presence. All subjects in the supraliminal groups reported seeing the stimulus eight or more times; some reported seeing it as many as sixteen times. The mean number of times the stimulus was reported seen in the supraliminal, sensitized group was 10.75 (s.d. = 1.92). In the supraliminal, non-sensitized group the mean was 11.25 (s.d. = 2.63). There were eight subjects in each of these groups.

First Analyses of the Data

Prior to the actual examination and interpretation of experimental outcomes, several preparatory analyses were performed upon the data. The first such analysis was the computation of descriptive statistics for each of the five dependent variables, both separately for each experimental group and for all groups combined.[4] Table 4 arrays the means and standard deviations of each variable by group.

Upon inspection of Table 4, it will be noticed that the amount of variability of response apparently differs from group to group, although these differences in variability are not apparently systematic. Accordingly, the homogeneity of within-cell variance for each of the five dependent variables was checked by applying Bartlett's test for the homogeneity of variances (McNemar, 1969, p. 285). The results of this procedure are shown in Table 5. These results indicate that significant differences in variance among the eight groups exist for retention of testimony, belief of testimony, perceived importance of testimony,

[4]All major statistical analyses of the experimental data were performed using programming packages from Statistical Package for the Social Sciences, Version 7.0 (McGraw-Hill, 1975) on a CDC 6500 computer.

Table 4. Dependent Variable Measures, by Group.

Group	n	Retention (max. = 14) Mean	s.d.
Control, Non-sensitized	12	11.75	3.08
Control, Sensitized	6	12.67	1.21
Low Subliminal, Non-sensitized	9	11.89	2.37
Low Subliminal, Sensitized	9	10.78	2.91
Mod. Subliminal, Non-sensitized	13	12.77	1.36
Mod. Subliminal, Sensitized	19	12.53	2.14
Supraliminal, Non-sensitized	8	11.00	4.07
Supraliminal, Sensitized	8	12.00	1.07
All	84	12.01	2.43

Table 4 (cont'd.).

Group	n	Belief (max. = 14) Mean	s.d.
Control, Non-sensitized	12	13.92	.29
Control, Sensitized	6	12.83	2.04
Low Subliminal, Non-sensitized	9	13.56	.88
Low Subliminal, Sensitized	9	12.44	2.60
Mod. Subliminal, Non-sensitized	13	13.15	1.77
Mod. Subliminal, Sensitized	19	12.95	1.08
Supraliminal, Non-sensitized	8	11.88	2.53
Supraliminal, Sensitized	8	10.00	3.55
All	84	12.74	2.10

Table 4 (cont'd.).

Group	n	Importance (max. = 7.0) Mean	s.d.
Control, Non-sensitized	12	4.90	1.00
Control, Sensitized	6	5.24	.87
Low Subliminal, Non-sensitized	9	5.38	.65
Low Subliminal, Sensitized	9	5.35	.57
Mod. Subliminal, Non-sensitized	13	4.97	1.00
Mod. Subliminal, Sensitized	19	5.62	.81
Supraliminal, Non-sensitized	8	4.64	1.43
Supraliminal, Sensitized	8	5.56	.92
All	84	5.24	.94

Table 4 (cont'd.).

Group	n	Credibility (max. = 7.0) Mean	s.d.
Control, Non-sensitized	12	5.00	.71
Control, Sensitized	6	4.95	.71
Low Subliminal, Non-sensitized	9	4.92	.66
Low Subliminal, Sensitized	9	3.98	1.02
Mod. Subliminal, Non-sensitized	13	4.84	1.05
Mod. Subliminal, Sensitized	19	4.62	.80
Supraliminal, Non-sensitized	8	4.57	.81
Supraliminal, Sensitized	8	4.41	1.42
All	84	4.67	.92

Table 4 (cont'd.).

Group	n	Attitude toward Participation (max. = 7.0) Mean	s.d.
Control, Non-sensitized	12	4.53	1.51
Control, Sensitized	6	4.72	.33
Low Subliminal, Non-sensitized	9	5.15	1.55
Low Subliminal, Sensitized	9	4.70	.77
Mod. Subliminal, Non-sensitized	13	4.31	1.47
Mod. Subliminal, Sensitized	19	4.88	1.51
Supraliminal, Non-sensitized	8	5.29	1.03
Supraliminal, Sensitized	8	5.62	1.23
All	84	4.85	1.33

and attitude toward participation in the experiment. Perceived credibility of the witness showed no significant difference in group variances.

Because of the differences in variance detected, some thought must be given to the appropriateness of subsequent analytic procedures. One solution to the problem is to apply a transformation procedure to the data to produce more homogeneous variances. Smith (1976) presents a lucid discussion of various transformation procedures. Two problems exist in the application of such procedures. First, in this case no theoretical reason is apparent to indicate that transformed scales are a good or better measure of subject response than the original scales. Second, by employing non-linear transformation, interaction effects will be altered. If the transformed scale is difficult to understand in terms of what it measures, the interaction of two or more predictor variables upon that scale may be uninterpretable.

McNemar (1969, p. 288) suggests that heterogeneous variances will not markedly disrupt analysis of variance or related procedures, and that the net effect of such heterogeneiety is typically a small underestimation of Type I error.

Table 5. Results of Variance Homogeneity Tests.

Variable	Variance of Group: Control NS	Control S	Low sub. NS	Low sub. S	Mod. sub. NS	Mod. sub. S	Supra. NS	Supra. S	V^*	p
Retention	9.49	1.46	5.62	8.47	1.85	4.58	16.56	4.58	22.03	<.01
Belief	.08	4.16	.77	6.76	3.13	1.17	6.40	12.60	55.07	<.01
Importance	1.00	.76	.42	.32	1.00	.66	2.04	.84	22.98	<.01
Credibility	.50	.50	.44	1.04	1.10	.64	.66	2.02	7.71	>.30
Attitude toward Participation	2.28	.11	2.40	.59	2.16	2.28	1.06	1.51	22.35	<.01

*V, the resultant statistic from Bartlett's Test, follows the sampling distribution of chi-square with k - 1, (in this case, 7) degrees of freedom.

Because of the reasons cited above, it was decided not to perform a transformation upon the data. Thus, the reader is cautioned that the results of subsequent analyses may reflect a tendency toward underestimation of Type I error, or overestimation of significance.

The next preliminary analysis was performed to determine the relationship between subjects' scores on the misanthropy and the authoritarianism scales used to measure personality characteristics of the subjects.[5] A multiple regression procedure was used to test for interaction effects between these measures upon each of the dependent variables. The results of this procedure are shown in Table 6.

Based upon the absence of any significant interaction between the two variables, each subject's misanthropy scale score and authoritarianism scale score were summed to produce a "sensitivity index."

The level of stimulus intensity variable also required preliminary scrutiny in order to properly assess its relationship with subject responses. Four plausible methods of coding the levels of stimulus intensity for analysis present themselves. The first such method is to assign a number to each such intensity level consistent with the stimulus recognition rate, at

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[5]The correlation coefficient between these measures was $r = .49$.

Table 6. Analysis of Interaction Between Misanthropy and Authoritarianism

Dependent Variable	(a) $SS_{reg.}$*	(b) $SS_{reg.}$**	(c=b-a) $SS_{incr.}$	(d) $SS_{tot.}$	(e=d-b) $SS_{resid.}$	df	F***	p
Retention	55.39	66.57	11.18	490.99	424.42	1,80	2.11	>.05, N.S.
Belief	21.27	26.45	5.18	366.24	339.79	1,80	1.22	>.05, N.S.
Importance	4.29	4.33	.04	73.57	69.24	1,80	.05	>.05, N.S.
Credibility	.02	.09	.07	70.89	70.80	1,80	.08	>.05, N.S.
Attitude toward Participation	3.10	7.96	4.86	147.19	139.23	1,80	2.79	>.05, N.S.

*Regression sum of squares where both Misanthropy acore and Authoritarianism scores were used as predictors of dependent variable value.

**Regression sum of squares where Misanthropy score, Authoritarianism score, and interaction term (Misanthropy x Authoritarianism) were used as predictors of dependent variable values.

***$F_{interaction} = (SS_{incr.}/1) / (SS_{resid.}/80)$

that level, in the threshold determination pre-test. According to this scheme then, the control, low subliminal, moderate subliminal and supraliminal levels of stimulus intensity would be assigned codes of 0, 5, 35, and 99, respectively.

The second coding scheme considered reflects a ranking of intensity without regard to determined rates of stimulus recognition. Under this scheme the codes 1, 2, 3, and 4 would be applied to the control, low subliminal, moderate subliminal and supraliminal levels respectively.

The other two coding procedures include a priori assumptions about the relationships between stimulus intensity and the dependent variables and were employed for comparative purposes. Thus, the third alternative is based upon the assumption that the two subliminal stimulus intensities are identical in effect and does not distinguish between them. Under this scheme the four levels of intensity arranged from control to supraliminal would be coded 1, 2, 2, 3, respectively.

The fourth method makes an even stronger assumption, namely that the control level (no stimulus) and the two subliminal levels of intensity are identical in effect. In other words, the assumption is that the subliminal

messages will have the same effect as no message. According to this scheme, the control, low subliminal, moderate subliminal and supraliminal levels of stimulus intensity would be coded 1, 1, 1, and 2, respectively.

The measures for each dependent variable were subjected to a regression analysis with the stimulus intensity variable coded each of the four ways described above. The purpose of these procedures was to determine the type and strength of the relationships between the key independent variable, level of stimulus intensity, and each of the dependent variables. The results of these procedures are arrayed in Tables 7 and 8. Table 7 contains the results of testing for significant non-linear relationships between the stimulus intensity variable and the dependent variables.[6] The procedure is taken from Hays (1963, p. 585). Table 8 shows the correlation coefficient, the proportion of variance explained and the significance of the correlation between the independent and each of the dependent variables for each of the coding schemes employed.

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[6]The fourth coding scheme was defined in terms of only two values, thus no deviations from linearity can be calculated. It was therefore left out of this analysis.

Table 7. Non-linear Regression of Dependent Variables on Level of Stimulus Intensity.

Level of Stimulus Intensity coded: 0, 5, 35, 99.

Variable	(a) SS_{tot}	(b) SS_{bet}	(a-b) SS_{err}	(c) $SS_{lin\ reg}$	(b-c) SS_{dev}	df	F^*	p
Retention	490.99	24.55	466.44	.33	24.22	2,80	2.13	>.05,N.S.
Belief	366.24	67.87	298.37	60.38	7.49	2,80	1.03	>.05,N.S.
Importance	73.57	1.96	71.61	.04	1.92	2,80	1.10	>.05,N.S.
Credibility	70.89	3.20	67.69	.68	2.53	2,80	1.53	>.05,N.S.
Attitude toward Participation	147.19	8.45	138.74	5.34	3.12	2,80	.92	>.05,N.S.

*The F ratio given here is the ratio of the mean square of deviations from linear regression divided by the mean square error (Hays, 1963, p. 585).

Table 7 (cont'd.).

Level of Stimulus Intensity coded: 1, 2, 3, 4.

Variable	(a) SS_{tot}	(b) SS_{bet}	(a-b) SS_{err}	(c) $SS_{lin\ reg}$	(b-c) SS_{dev}	df	F^*	p
Retention	490.99	24.55	466.44	.07	24.49	2,80	2.15	>.05,N.S.
Belief	366.24	67.87	298.37	44.62	23.24	2,80	3.19	<.05
Importance	73.57	1.96	71.61	.15	1.81	2,80	1.04	>.05,N.S.
Credibility	70.89	3.20	67.69	1.18	2.02	2,80	1.22	>.05,N.S.
Attitude toward Participation	147.19	8.45	138.74	3.48	4.97	2,80	1.47	>.05,N.S.

Table 7 (cont'd.).

Level of Stimulus Intensity coded: 1, 2, 2, 3.

Variable	(a) SS_{tot}	(b) SS_{bet}	(a-b) SS_{err}	(c) $SS_{lin\ reg}$	(b-c) SS_{dev}	df	F^*	p
Retention	490.99	5.32	485.66	2.37	2.95	1,81	.49	>.05,N.S.
Belief	366.24	67.88	298.36	55.79	12.08	1,81	3.28	>.05,N.S.
Importance	73.51	2.36	71.16	.11	2.25	1,81	2.56	>.05,N.S.
Credibility	70.89	2.82	68.07	2.14	.68	1,81	.81	>.05,N.S.
Attitude toward Participation	147.19	7.80	139.39	6.07	1.73	1,81	1.00	>.05,N.S.

The results shown in Table 7 show that for the three coding alternatives for the key independent variable, a significant non-linear relationship exists in only one instance, i.e., for belief of testimony when level of stimulus intensity is coded 1, 2, 3, 4. In all other cases non-linear relationships may be ignored, regardless of which coding scheme was used. The single significant non-linear relationship will be discussed more fully in a later section.

Table 8 shows that there exists a significant relationship between belief of testimony and level of stimulus intensity regardless of the manner in which the latter variable was coded. It also shows that for the 1, 1, 1, 2 coding of the stimulus intensity variable, a significant relationship exists between it and subjects' attitude toward participation in the experiment. No other significant relationships were detected. The table also shows that the coding scheme which maximizes explained variance in four of the five dependent variables is the 1, 1, 1, 2 scheme, which assumes no difference in subliminal stimulus and no stimulus conditions. While such an assumption may be warranted, this result will be overlooked for the present in order to concentrate upon the first two coding methods which

Table 8. Dependent Variable Variance Explained by Level of Stimulus Intensity.

Level of Stimulus Intensity coded: 0, 5, 35, 99.

Variable	R	R^2	F*	df	p
Retention	.026	.001	.06	1,82	>.05, N.S.
Belief	.406	.165	16.19	1,82	<.001
Importance	.024	.001	.05	1,82	>.05, N.S.
Credibility	.098	.010	.79	1,82	>.05, N.S.
Attitude toward Participation	.190	.036	3.08	1,82	>.05, N.S.

*The F statistic cited here is used to test the null hypothesis that the sample has been drawn from a population in which the correlation is zero.

Table 8 (cont'd.).

Level of Stimulus Intensity coded: 1, 2, 3, 4.

Variable	R	R^2	F*	df	p
Retention	.012	.000	.01	1,82	>.05, N.S.
Belief	.349	.122	11.38	1,82	<.001
Importance	.045	.002	.16	1,82	>.05, N.S.
Credibility	.129	.017	1.39	1,82	>.05, N.S.
Attitude toward Participation	.154	.024	1.99	1,82	>.05, N.S.

Table 8 (cont'd.).

Level of Stimulus Intensity coded: 1, 2, 2, 3.

Variable	R	R^2	F*	df	p
Retention	.070	.005	.40	1,82	>.05, N.S.
Belief	.390	.152	14.74	1,82	<.001
Importance	.038	.001	.12	1,82	>.05, N.S.
Credibility	.174	.030	2.55	1,82	>.05, N.S.
Attitude toward Participation	.203	.041	3.52	1,82	>.05, N.S.

Table 8 (cont'd.).

Level of Stimulus Intensity coded: 1, 1, 1, 2.

Variable	R	R^2	F	df	p
Retention	.103	.010	.87	1,82	>.05, N.S.
Belief	.418	.175	17.39	1,82	<.001
Importance	.069	.005	.40	1,82	>.05, N.S.
Credibility	.095	.009	.75	1,82	>.05, N.S.
Attitude toward Participation	.223	.050	4.30	1,82	<.05

are better justified by the results of the second pre-test. Of these two methods the 0, 5, 35, 99 scheme is the more effective in maximizing explained variance in four if the five dependent variables, and is consistent with the results of the threshold determination pre-test. Accordingly, this scheme will be employed in subsequent analyses.

One additional preliminary examination was made in order to check that the retention, belief, and perceived importance of the fourteen key testimony items was roughly similar. The items chosen were retained by and believed by between eighty and one hundred percent of the pre-test subjects and had received a mean importance rating of between 4.72 and 6.16 on a seven-point scale where seven is maximally important.

In the experiment proper, these items were retained by between 72% and 99% of the subjects; they were believed by between 73% and 99% of the subjects; and the mean importance rating of the items was between 3.94 and 5.98. The retention, belief and importance values for the individual testimony items are presented in Table 9.

Table 9. Subject Reactions to Key Testimony Items. (N=84)

Item	Retention (%)	Belief (%)	Importance (max. = 7.0) mean	s.d.
Kind of truck	85	97	3.94	1.71
Number of cylinders truck holds	73	92	4.60	1.56
Number of tanks crane lifts	85	99	4.55	1.62
Number of tanks already lowered	84	93	4.89	1.48
Height of truck bed from ground	89	95	5.79	1.17
Who was asked about truck placement	98	86	4.78	1.47
Position of tail-gate (first time)	86	91	5.77	1.40
How Montague got down from truck	82	94	4.84	1.40
Position of tail-gate (second time)	81	89	5.66	1.26
How was tailgate position changed	72	91	5.98	1.43
Montague's location during accident	87	95	5.72	1.38
Standard procedure for tailgate	87	73	5.73	1.56
Was tailgate broken	99	87	5.72	1.45
Montague's behavior after accident	94	80	5.37	1.72

Multiple Regression Analysis of the Data

The primary analysis of the experimental data was accomplished by performing a multiple regression procedure separately upon each of the five dependent variables. The predictor variables used in this procedure were the three independent variables, level of stimulus intensity, sensitization (or non-sensitization) to the experimental stimuli, and scores on the sensitivity index, plus three two-way interaction terms formed by computing the product of each of the three possible pairs of variables, plus one three-way interaction term formed by computing the product of the value of all three variables. To reduce multicollinearity in the set of predictor variables each independent variable value was reduced by that variable's mean before multiplication to produce the two-way interaction terms and the product of two variables was reduced by the mean of that product before multiplication to produce the three-way interaction term. Thus there were seven predictor variables in the procedure in all.

The parameters for inclusion of predictor variables in the equation were rather lenient. No restriction was made as to the number of variables which could be entered; thus all seven could conceivably be included. Tolerance

level was set at .40, thus a variable could be included in the equation even though as little as two-fifths of its variance was unexplained by variables already in the equation. Inspection of the results of the analysis indicates show that intercorrelations among the predictor variables did not cause any variable to be excluded from the regression equation and that the tolerance level criterion was not approached.[7]

Table 10 displays the results of the multiple regression procedures. For each dependent variable, all significant predictor variables are listed along with degree of correlation with the dependent variable, proportion of dependent variable variance explained, F-values, and levels of significance. The .05 significance level was chosen as the criterion for inclusion of predictor variables. The predictors listed are in descending order of their contribution to explained variance. Since a stepwise procedure was employed, the multiple R values refer to correlation between the dependent variable and all predictor variables preceding the R value. In order to improve readibility the three first-order independent variables were abbreviated thus: Level, for level of stimulus intensity; Sens, for whether sensitized to the stimuli; and Score, for score on the sensitivity index.

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[7]A matrix of correlation coefficients between selected experimental variables appears in Appendix G.

Table 10. Summary of Multiple Regression Analysis. (N=84)

Dependent Variable	Predictor Variable	Multiple R	R^2	F	p
Retention	Score	.302	.091	8.25	.005
	Score x Sens	.392	.154	7.37	.016
Belief	Level	.406	.164	16.19	.001
	Score x Level	.477	.227	6.55	.012
	Sens	.524	.275	5.24	.025
Importance	Sens	.278	.078	6.89	.010
	Score	.380	.144	6.33	.014
	Score x Sens x Level	.436	.190	4.52	.036
Credibility	None	----	----	----	----
Attitude toward Participation	None	----	----	----	----

Inspection of Table 10 shows that two significant predictor variables were found for retention of information. One was the sensitivity index score; the other was the sensitivity score and sensitization interaction variable. Level of stimulus intensity was not a significant factor in determining retention. The absence of a systematic relationship between retention and level of stimulus intensity can be seen in Figure 7.

The analysis shows that the relationship between sensitivity score and retention is negative (beta = -.28 in the final equation). Thus, persons with high scores on the index tended to retain less of the factual information in the testimony than those who had lower scores. The interaction term indicates that persons with high sensitivity scores retained more in sensitized groups, whereas persons with low sensitivity scores retained more in non-sensitized groups. The beta coefficient for the interaction term in the final equation was .25.

In examining the results of the regression procedure for belief of testimony items, we find that three significant predictor variables were identified. These were: level of stimulus intensity, sensitization to the stimuli, and the sensitivity score by level of intensity interaction. Together these predictors account for more than

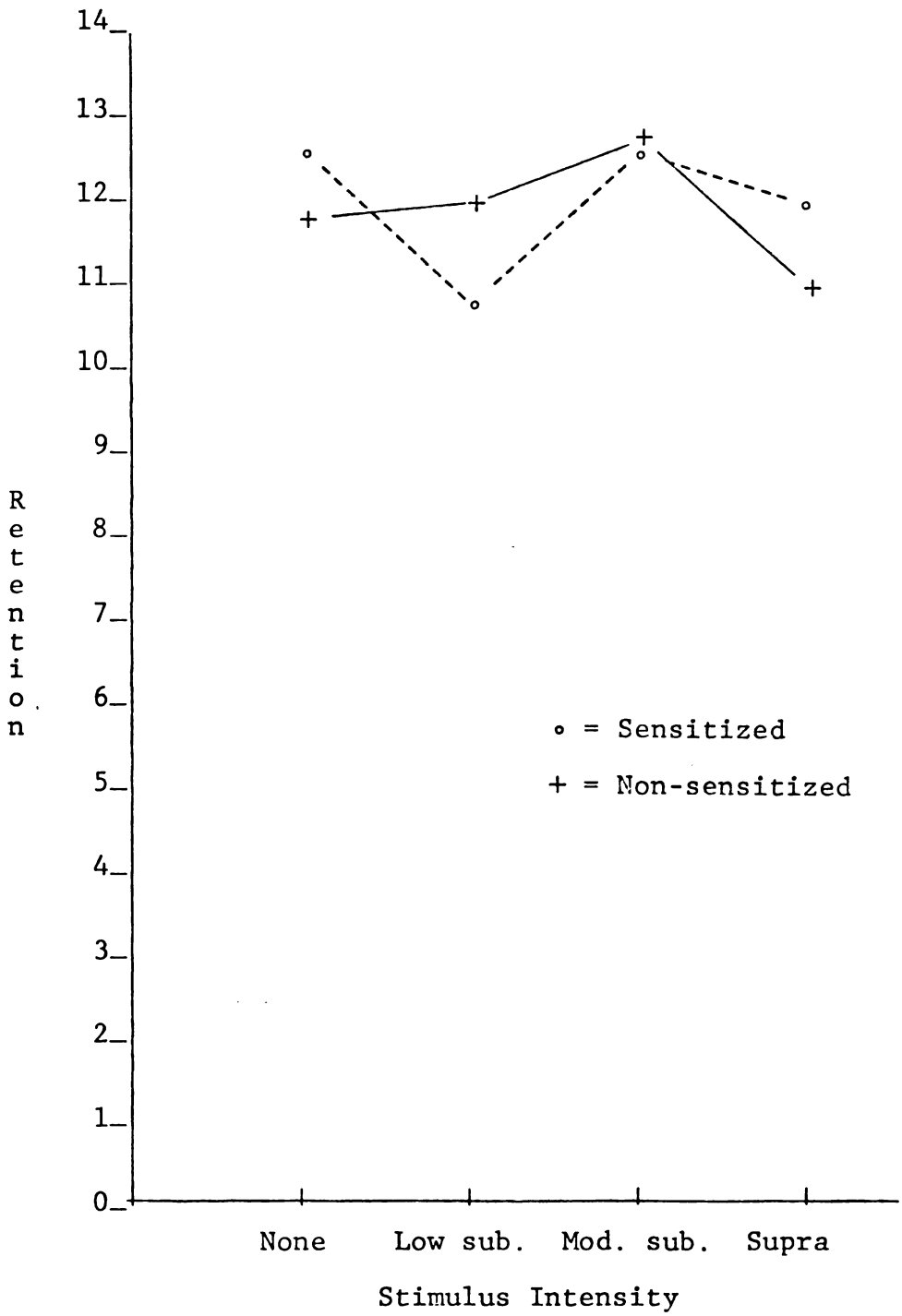

Figure 7. Mean Retention Measures, by Group (N = 84).

twenty-seven percent of the variance in belief.

The regression coefficients indicate that subjects tended to believe the testimony less at high levels of stimulus intensity (beta = -.26). Levels of belief for subjects at different levels of stimulus intensity can be compared in Figure 8. The sensitization of subjects to the presence of the experimental stimuli also produces a decrement in belief (beta = -.22). Further, the data indicate that persons with high sensitivity scores believed less of the testimony at high levels of stimulus intensity than persons with low sensitivity scores (beta = -.30).

The significant contribution of level of stimulus intensity to prediction of belief is of central importance to the study. Although the regression procedure shows that more than one-fourth of the variance in belief is accounted for by variance in level of intensity, examination of Figure 8 suggests that this relationship is heavily weighted by the responses of the subjects in the supraliminal stimulus groups. Because of this possibility and the importance of this finding to the study, the relationship between belief of testimony and the predictor variables will be examined and discussed in greater detail in a later section.

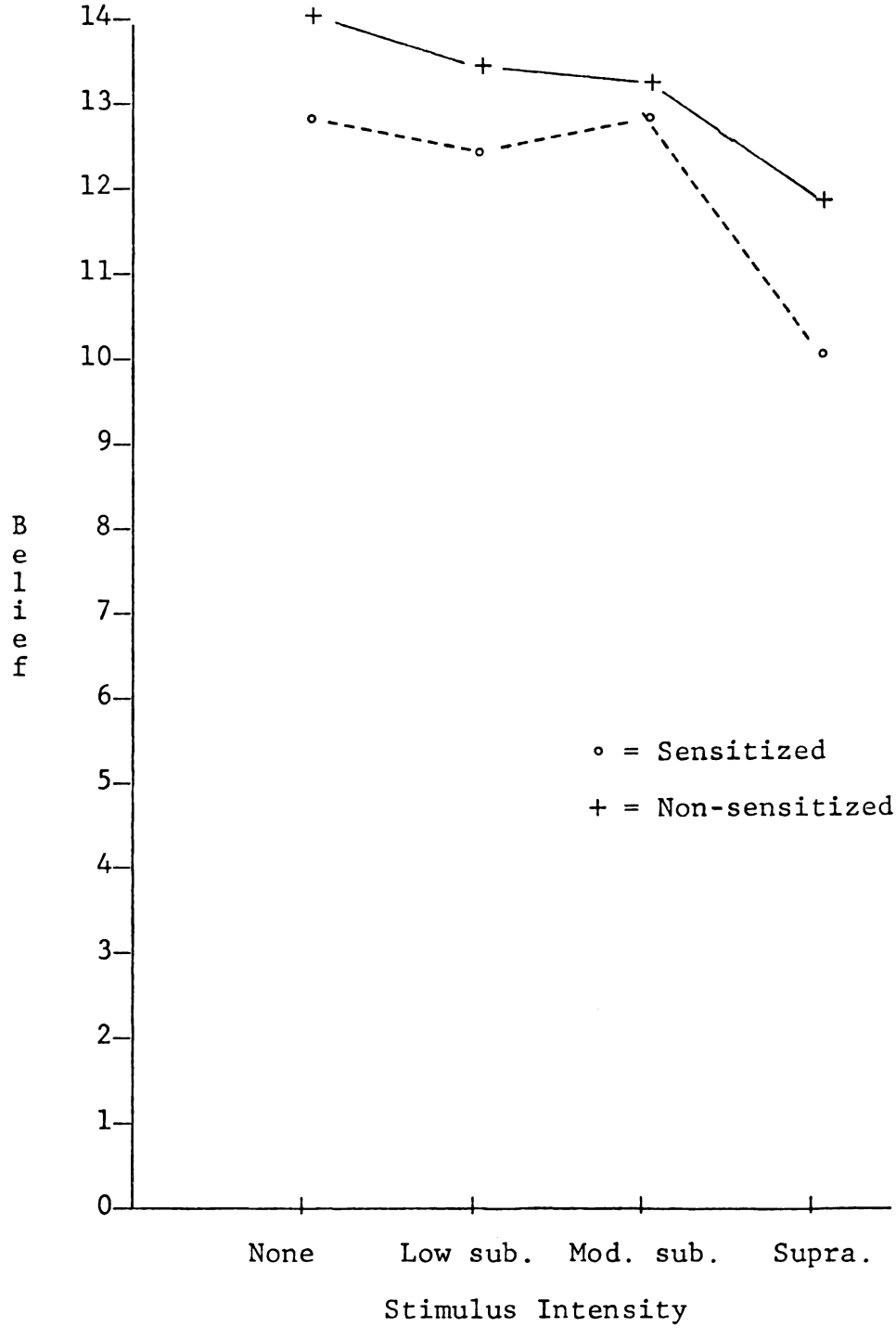

Figure 8. Mean Belief Measures, by Group (N = 84).

Three significant predictor variables were found for subjects' importance ratings of testimony. Sensitization to the presence of the experimental stimuli was found to be related to higher importance ratings (beta = .30). Scores on the sensitivity index were found to be inversely related to importance ratings (beta = -.30). Finally, a three-way interaction among the independent variables was included. The relationship between this and importance ratings can be described roughly as follows. If sensitized to the presence of the stimuli, subjects with high sensitivity scores rated the testimony as more important in high stimulus intensity conditions, whereas subjects with low sensitivity scores rated the testimony more important in low stimulus intensity conditions. If subjects were not sensitized to the presence of the stimuli, the reverse relationship obtained. Mean importance rating for subjects in the eight experimental groups can be compared in Figure 9.

The multiple regression procedure produced no significant predictor variables for either of the other two dependent variables, witness credibility and subject's attitude toward participation in the experiment. Graphic representation of the mean value of these

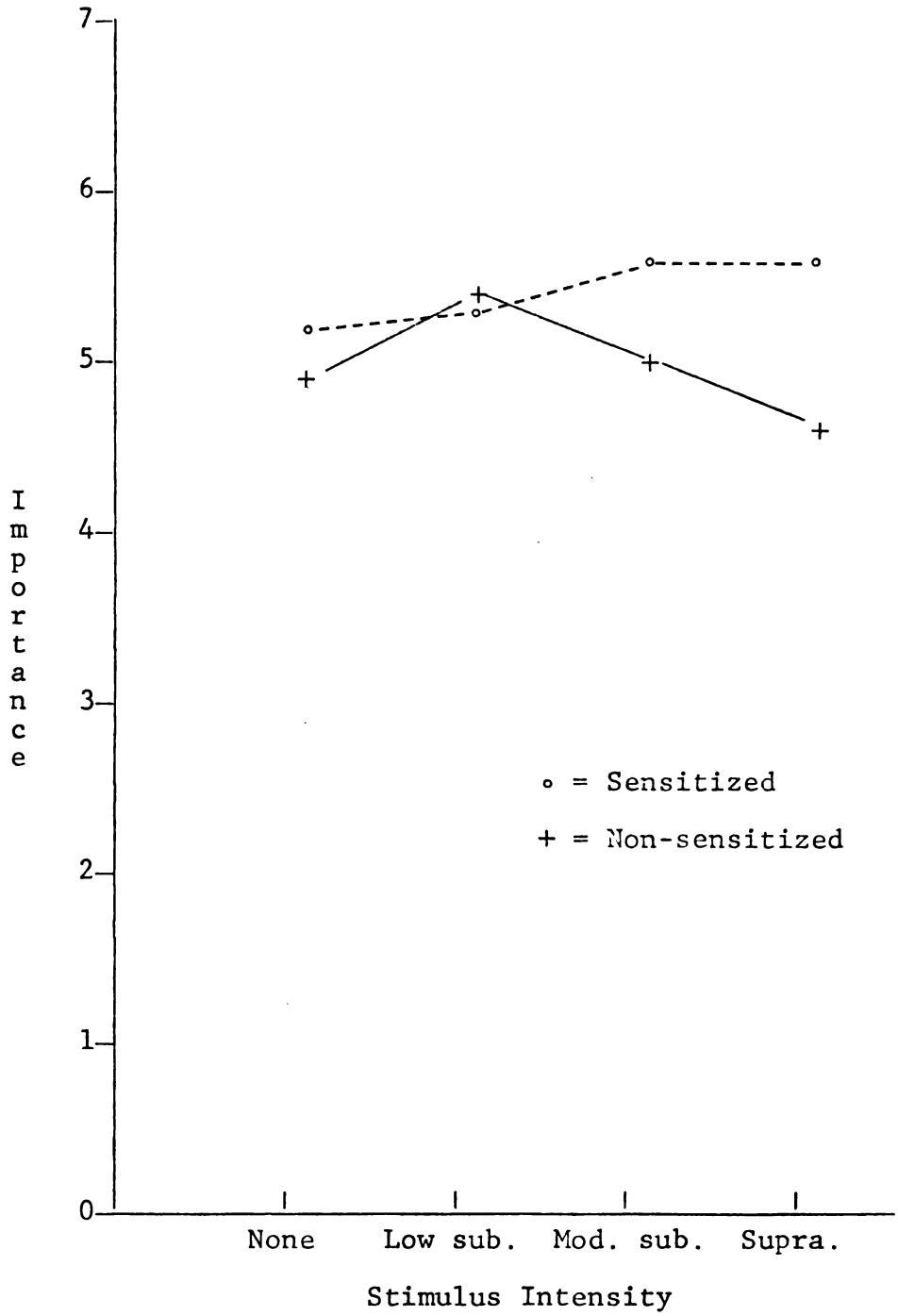

Figure 9. Mean Importance Measures, by Group (N = 84).

variables for each of the eight experimental groups is provided in Figures 10 and 11.

In summary, the results of the multiple regression procedures show:

1. Significant predictor variables were found for three of the dependent variables: retention, belief, and importance.

2. Level of stimulus intensity entered into prediction equations for two of these variables. With belief, level of intensity appeared as a first-order variable and also as part of an interaction with sensitivity score. For importance, it appeared as part of a three-way interaction.

3. Sensitization to the experimental stimuli was a part of the prediction equations for all three variables. It appeared as a first-order variable in the equations for belief and importance, in a two-way interaction (with sensitivity score) for retention, and in a three way interaction for importance.

4. Sensitivity score appeared in all three equations. It was a first-order variable with retention and importance. It was part of an interaction with sensitization for retention, and with level of intensity for belief. It was also part of a three-way interaction for importance.

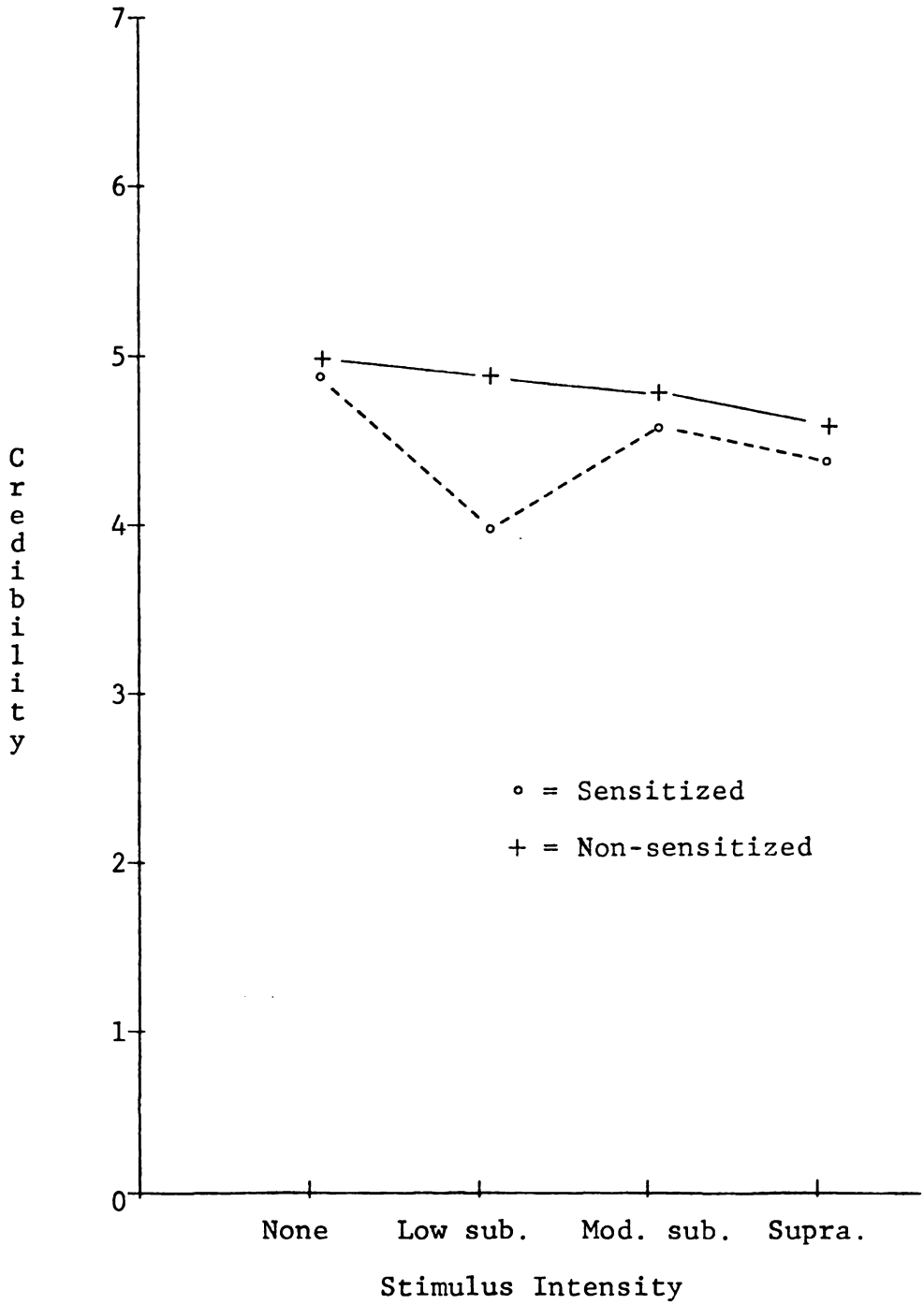

Figure 10. Mean Credibility Measures, by Group (N = 84).

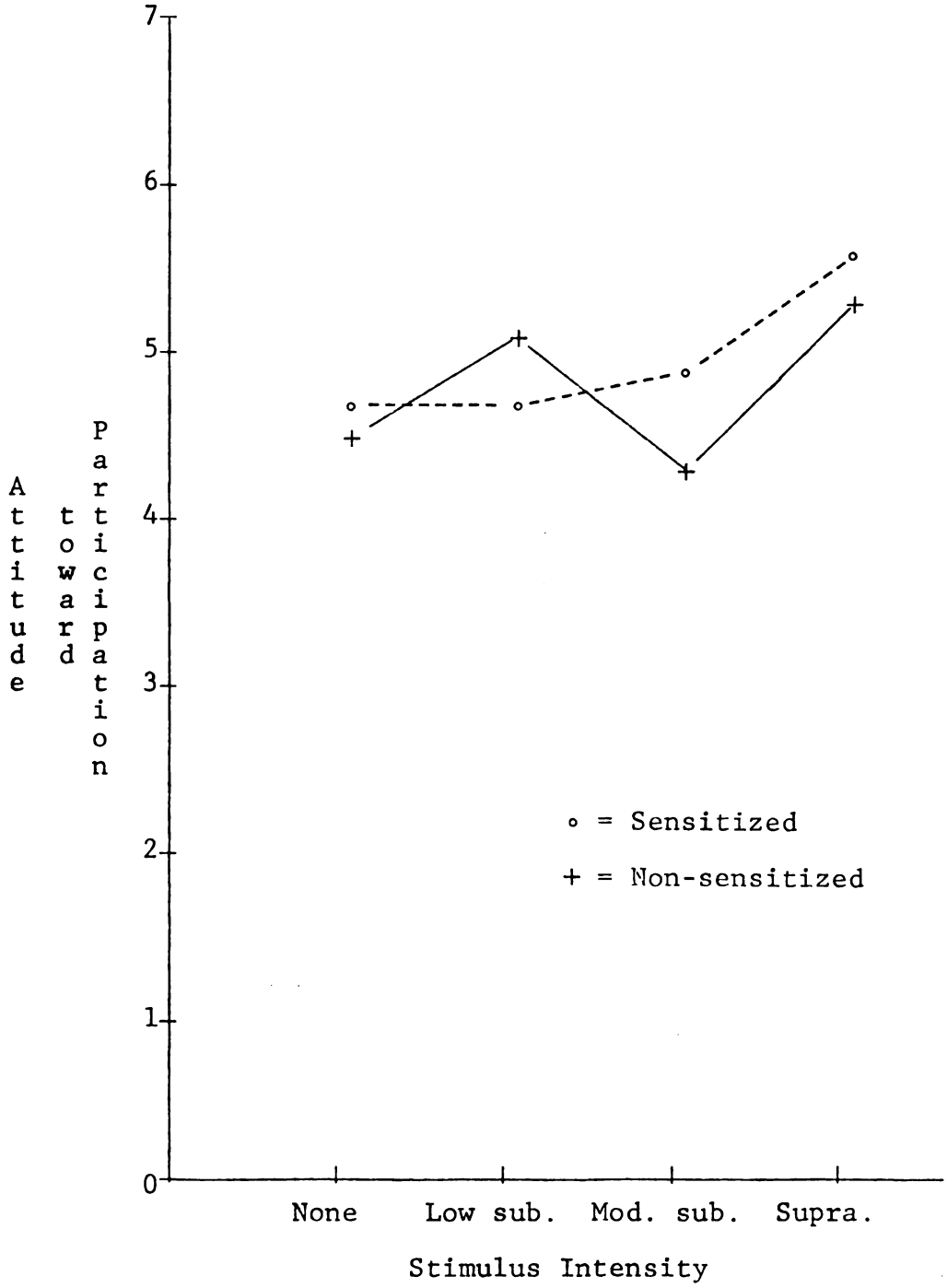

Figure 11. Mean Attitude Toward Participation, by Group ($\underline{N}$ = 84).

Because the focus of the study is upon the level of intensity variable and its effects upon subject responses, it was decided to perform further analyses upon the data to better define these relationships. It will be remembered that level of stimulus intensity was found to be a significant variable in predicting belief of testimony. However, examination of Figure 8 suggests that this relationship is not systematic, but rather is indicative of belief scores of subjects in supraliminal conditions being different from all other subjects. Accordingly, another multiple regression procedure was performed upon the responses of subjects in the three lowest stimulus intensity conditions (control, low subliminal, moderate subliminal) to ascertain whether the same relationships would be observed. Again each of the five dependent variables was examined separately in order to compare the results from the two regression procedures. The results of this latter analysis are shown in Table 11. As can be seen upon inspection of the table, several differences exist in the two analyses. In the second analysis, no significant interaction terms appear. No significant predictors for credibility or attitude toward the experiment were found, nor for retention. Belief and importance have one significant predictor--

Table 11. Summary of Multiple Regression Analysis for non-supraliminal groups. (N = 68)

Dependent Variable	Predictor Variable	Multiple R	R^2	F	p
Retention	None	----	----	----	----
Belief	Sens	.243	.059	4.15	.046
Importance	Sens	.250	.063	4.40	.040
Credibility	None	----	----	----	----
Attitude toward Participation	None	----	----	----	----

sensitization to the presence of experimental stimuli.

These differences between the results of the two procedures indicate that the relationships found when all subjects' responses were used are not systematic and in particular do not apply to subjects in subliminal stimulus conditions. In order to establish the occurrence of subliminal stimulation three conditions were necessary. The first is a difference in response between no stimulus and subliminal stimulus conditions. The second is a similarity in response between subliminal and supraliminal stimulus conditions. The third is a difference in awareness between subliminal and supraliminal conditons. The results of these analyses do not establish that the first two of these conditions occurred.

Comparison of Individual Experimental Cells

In order to examine the patterns of subject response in more detail so that firmer conclusions could be drawn concerning the conditions discussed above a series of individual cell comparisons were made using the *t*-test for means. Fifty *t*-tests were performed comparing each dependent variable mean for each of the pairs of cells listed below.[8]

1. No Stimulus: Sensitized *vs*. Non-sensitized

[8]Pooled, rather than separate, variance estimates were used in computing the *t* values.

2. Low subliminal level: Sensitized vs. Non-sensitized

3. Moderate subliminal level: Sensitized vs. Non-sensitized

4. Supraliminal level: Sensitized vs. Non-sensitized

5. Non-sensitized: No Stimulus vs. Low subliminal

6. Non-sensitized: No Stimulus vs. Moderate subliminal

7. Non-sensitized: Low subliminal vs.Moderate subliminal

8. Sensitized: No Stimulus vs. Low subliminal

9. Sensitized: No Stimulus vs. Moderate subliminal

10. Sensitized: Low subliminal vs. Moderate subliminal.

The results of these tests are shown in Table 12. The .10 level of significance was chosen as the criterion in assessing t values. It should be noted that the results reported in Table 12 do not represent fifty independent t-tests, and given the significance level chosen, it is probable that five or six of the results should appear significant when in fact they reflect no true relationship. The purpose of these comparisons is primarily to discern whether patterns of differences in individual groups support the possibility of systematic differences.

Inspection of the table reveals that exactly six of the fifty comparisons were significantly different at the .10 significance level. This number corresponds to what could be expected by chance. Three of these

Table 12. Comparison of Specific Experimental Group Means by t-test.

No Stimulus (Control): Sensitized vs. Non-sensitized Groups

Dependent Variable	Group	n	Mean	s.d.	t	p*
Retention	Non-sensitized	12	11.75	3.08	-.69	N.S.
	Sensitized	6	12.67	1.21		
Belief	Non-sensitized	12	13.92	.29	1.86	.08
	Sensitized	6	12.83	2.04		
Importance	Non-sensitized	12	4.90	1.00	-.70	N.S.
	Sensitized	6	5.24	.87		
Credibility	Non-sensitized	12	5.00	.71	.13	N.S.
	Sensitized	6	4.95	.71		
Attitude toward Experiment	Non-sensitized	12	4.53	1.51	-.31	N.S.
	Sensitized	6	4.72	.33		

*In this table the notation N.S. indicates $p > .10$.

Table 12 (cont'd.).

Low Subliminal: Sensitized vs. Non-sensitized Groups

Dependent Variable	Group	n	Mean	s.d.	t	p*
Retention	Non-sensitized	9	11.89	2.37	.89	N.S.
	Sensitized	9	10.78	2.91		
Belief	Non-sensitized	9	13.56	.88	1.21	N.S.
	Sensitized	9	12.44	2.60		
Importance	Non-sensitized	9	5.38	.65	.11	N.S.
	Sensitized	9	5.35	.57		
Credibility	Non-sensitized	9	4.92	.66	2.33	.03
	Sensitized	9	3.98	1.02		
Attitude toward Experiment	Non-sensitized	9	5.15	1.56	.77	N.S.
	Sensitized	9	4.70	.77		

Table 12 (cont'd.).

Moderate Subliminal: Sensitized vs. Non-sensitized Groups

Dependent Variable	Group	n	Mean	s.d.	t	p*
Retention	Non-sensitized	13	12.77	1.36	.36	N.S.
	Sensitized	19	12.53	2.14		
Belief	Non-sensitized	13	13.15	1.77	.41	N.S.
	Sensitized	19	12.95	1.08		
Importance	Non-sensitized	13	4.97	1.00	-2.04	.05
	Sensitized	19	5.62	.81		
Credibility	Non-sensitized	13	4.84	1.05	.67	N.S.
	Sensitized	19	4.62	.80		
Attitude toward Experiment	Non-sensitized	13	4.31	1.47	-1.06	N.S.
	Sensitized	19	4.88	1.51		

Table 12 (cont'd.).

Supraliminal: Sensitized vs. Non-sensitized Groups

Dependent Variable	Group	n	Mean	s.d.	t	p*
Retention	Non-sensitized	8	11.00	4.07	-.67	N.S.
	Sensitized	8	12.00	1.07		
Belief	Non-sensitized	8	11.88	2.53	1.22	N.S.
	Sensitized	8	10.00	3.55		
Importance	Non-sensitized	8	4.64	1.43	-1.53	N.S.
	Sensitized	8	5.56	.92		
Credibility	Non-sensitized	8	4.57	.81	.28	N.S.
	Sensitized	8	4.41	1.42		
Attitude toward Experiment	Non-sensitized	8	5.29	1.03	-.58	N.S.
	Sensitized	8	5.62	1.23		

Table 12 (cont'd.).

Non-sensitized: No Stimulus (Control) vs. Low Subliminal Groups

Dependent Variable	Group	n	Mean	s.d.	t	p*
Retention	No Stimulus	12	11.75	3.08	-.11	N.S.
	Low Subliminal	9	11.89	2.37		
Belief	No Stimulus	12	13.92	.29	1.34	N.S.
	Low Subliminal	9	13.56	.88		
Importance	No Stimulus	12	4.90	1.00	-1.26	N.S.
	Low Subliminal	9	5.38	.65		
Credibility	No Stimulus	12	5.00	.71	.25	N.S.
	Low Subliminal	9	4.92	.66		
Attitude toward Experiment	No Stimulus	12	4.53	1.51	-.92	N.S.
	Low Subliminal	9	5.15	1.56		

Table 12 (cont'd.).

Non-sensitized: No Stimulus (Control) vs. Moderate Subliminal Groups

Dependent Variable	Group	n	Mean	s.d.	t	p*
Retention	No Stimulus	12	11.75	3.08	-1.09	N.S.
	Mod. Subliminal	13	12.77	1.36		
Belief	No Stimulus	12	13.92	.29	1.47	N.S.
	Mod. Subliminal	13	13.15	1.77		
Importance	No Stimulus	12	4.89	1.00	-.18	N.S.
	Mod. Subliminal	13	4.97	1.00		
Credibility	No Stimulus	12	5.00	.71	.45	N.S.
	Mod. Subliminal	13	4.84	1.05		
Attitude toward Experiment	No Stimulus	12	4.53	1.51	.37	N.S.
	Mod. Subliminal	13	4.31	1.47		

Table 12 (cont'd.).

Non-sensitized: Low Subliminal vs. Moderate Subliminal Groups

Dependent Variable	Group	n	Mean	s.d.	t	p*
Retention	Low Subliminal	9	11.89	2.37	-1.11	N.S.
	Mod. Subliminal	13	12.77	1.36		
Belief	Low Subliminal	9	13.56	.88	.63	N.S.
	Mod. Subliminal	13	13.15	1.77		
Importance	Low Subliminal	9	5.38	.65	1.09	N.S.
	Mod. Subliminal	13	4.97	1.00		
Credibility	Low Subliminal	9	4.92	.66	.22	N.S.
	Mod. Subliminal	13	4.84	1.05		
Attitude toward Experiment	Low Subliminal	9	5.15	1.56	1.29	N.S.
	Mod. Subliminal	13	4.31	1.47		

Table 12 (cont'd.).

Sensitized: No Stimulus (Control) vs. Low Subliminal Groups

Dependent Variable	Group	n	Mean	s.d.	t	p*
Retention	No Stimulus	6	12.67	1.21	1.49	N.S.
	Low Subliminal	9	10.77	2.91		
Belief	No Stimulus	6	12.83	2.02	.31	N.S.
	Low Subliminal	9	12.44	2.60		
Importance	No Stimulus	6	5.23	.87	-.31	N.S.
	Low Subliminal	9	5.35	.57		
Credibility	No Stimulus	6	4.95	.71	2.02	.06
	Low Subliminal	9	3.98	1.02		
Attitude toward Experiment	No Stimulus	6	4.72	.33	.06	N.S.
	Low Subliminal	9	4.70	.77		

Table 12 (cont'd.).

Sensitized: No Stimulus (Control) vs. Moderate Subliminal Groups

Dependent Variable	Group	n	Mean	s.d.	t	p*
Retention	No Stimulus	6	12.67	1.21	.15	N.S.
	Mod. Subliminal	19	12.52	2.14		
Belief	No Stimulus	6	12.83	2.04	-.18	N.S.
	Mod. Subliminal	19	12.95	1.08		
Importance	No Stimulus	6	5.24	.87	-1.00	N.S.
	Mod. Subliminal	19	5.62	.81		
Credibility	No Stimulus	6	4.95	.71	.92	N.S.
	Mod. Subliminal	19	4.62	.80		
Attitude toward Experiment	No Stimulus	6	4.72	.33	-.24	N.S.
	Mod. Subliminal	19	4.88	1.51		

Table 12 (cont'd.).

Sensitized: Low Subliminal vs. Moderate Subliminal Groups

Dependent Variable	Group	n	Mean	s.d.	t	p*
Retention	Low Subliminal	9	10.78	2.91	-1.80	.08
	Mod. Subliminal	19	12.53	2.14		
Belief	Low Subliminal	9	12.44	2.60	-.73	N.S.
	Mod. Subliminal	19	12.95	1.08		
Importance	Low Subliminal	9	5.35	.57	-.90	N.S.
	Mod. Subliminal	19	5.62	.81		
Credibility	Low Subliminal	9	3.98	1.02	-1.79	.08
	Mod. Subliminal	19	4.62	.80		
Attitude toward Experiment	Low Subliminal	9	4.70	.77	-.32	N.S.
	Mod. Subliminal	19	4.88	1.51		

differences arise from comparisons between sensitized and non-sensitized groups. The others show that the low subliminal, sensitized group differed in credibility ratings from the no stimulus, sensitized group; the low subliminal, sensitized group differed in credibility ratings from the moderate subliminal sensitized group; and the low subliminal, sensitized group differed in retention from the moderate subliminal, sensitized group. What might appear to be a systematic difference (among sensitized groups' credibility ratings) is not, for the moderate subliminal group's mean is not significantly different from the mean of the control group. The low subliminal group stands out from the rest, including the supraliminal group (see Figure 10).

Summary of Results of Analysis

Examination of the relationships between the set of predictor variables and each of the five dependent variables shows only two significant relationships which are systematic in that they exist among the data for control and subliminal group subjects as well as among the data for all groups. These two relationships are between the sensitization to experimental stimuli variable and subject belief of testimony, and between the former and subjects' importance ratings of testimony.

No significant systematic relationship was found between any of the dependent variables and either level of stimulus intensity or sensitivity index score. As a basis for comparison of effects it was shown that subjects who were sensitized to the experimental stimuli exhibited belief scores which were .91 (out of 14) points lower than subjects not so sensitized; whereas the results show that the maximum decrement in belief to be expected from exposure of subjects to a contradictory subliminal message is less than one- half a point. Even this estimate of effects is based upon the equation generated from all subject groups and therefore highly affected by the responses of supraliminal group subjects to the experimental stimulus.

Visual examination of the data suggest that the responses of the supraliminal group subjects differed from those of the rest of the subjects on two measures, belief of testimony and attitude toward participation in the experiment. Comparison of the two subject sub-groups on these variables substantiates that these differences are significant. For belief the mean measure for the supraliminal group subjects was 10.94 (s.d. = 3.13, n = 16); for the non-supraliminal groups the mean score was 13.16 (s.d. = 1.52, n = 68). The associated t value is 4.17

(df = 82). For the measures of subjects' attitude toward participation in the experiment the supraliminal group of subjects' mean score was 5.46 (s.d. = 1.11, n = 16); for the non-supraliminal subjects the mean score was 4.71 (s.d. = 1.35, n = 68). The associated t value in this case is 2.07. Both t values are significant at the .05 level.

Thus the major findings of the study may be summarized as follows:

1. No significant, systematic relationships between any dependent variable and level of stimulus intensity were found. Subjects to whom the experimental stimuli were presented supraliminally, however, did have significantly lower belief scores and significantly more positive attitude toward participation in the study than did subjects in all other conditions combined.

The results as they relate to level of stimulus intensity can perhaps be more easily interpreted when compared to the outcome models presented earlier in this chapter. With regard to retention of testimony, the best fitting model appears to be Outcome A (Figure 3), which is indicative of no effects attributable to stimulus intensity. Although Table 12 shows a significant difference in retention between the low subliminal and moderate subliminal (sensitized) groups, this difference does not appear to be part of a trend, or systematic relationship.

The relationship between belief of testimony and stimulus intensity appears to be best fitted by Outcome B, Case 1 (Figure 4). This model is consistent with findings of no effect upon belief by subliminal levels of stimulus intensity, whereas supraliminal intensity levels act to decrease belief.

The relationships between both importance ratings of testimony and credibility ratings of the witness appear to best fit Outcome A (Figure 3), which is the model indicating no effect of the experimental stimulus upon either dependent variable, whether the stimulus is presented subliminally or supraliminally.

Subjects' attitude toward their participation in the experiment in relation to stimulus intensity appears to fit Outcome B, Case 2 (Figure 4). This model is consistent with a finding of no effect upon the dependent variable associated with subliminal levels of stimulus presentation, but an increase in dependent variable scores associated with supraliminal stimulus presentation.

2. Sensitization to the presence of experimental stimuli was found to be related to two dependent variables. Sensitized subjects were found to express lower levels of belief of testimony than non-sensitized subjects did. Sensitized subjects also rated key instances of testimony as more important than did their non-sensitized counterparts.

3. Subjects' scores on the sensitivity index were not found to be a significant, systematic predictor of any measured response.

IV. DISCUSSION

Analysis of the data shows no evidence that the testimony-contradicting subliminal messages had any effect upon viewers' retention, belief, or importance ratings of testimony, or upon their credibility ratings of the witness, or attitude toward participation in the study. To make the claim that subliminal messages have no effect on the behavior of persons exposed to them is, however, a more complex issue and at least three pertinent factors merit discussion.

First, non-rejection of a null hypothesis is always associated with a probability of (Type II) error. For this study that probability is difficult to determine. Statistically significant experimental outcomes, though, should be interpreted in light of the explanatory power or social significance they represent. Because the power of a statistical technique increases with increased sample size, the use of large samples can produce statistically significant but otherwise trivial results. Thus large samples are not a prerequisite for good research. This study was largely an applied research study. Its purpose was to investigate a theoretical relationship

as it applies to a rather specific technological and social environment, namely, the video tape presentation of testimony to jurors. Because the size of the experimental groups employed in this study was approximately that of a standard trial jury, the purpose of this study has been satisfied and the findings should be of practical value to those considering the relative merits of video transcription in legal applications. It is possible that subsequent research may produce evidence which contradicts these findings by employing larger sample sizes, but the importance of such a finding to the issue of whether video transcription can be used safely in the courts would seem to be inversely related to the size of the samples employed in that research.

The second issue is the theoretical application of these findings. For purposes of experimental control, the study employed subliminal messages of singular form and content. Other methods of operationalization are certainly available and to over-generalize from these results would be foolhardy. While no single reaearch study can investigate all aspects of a problem, the particular operationalization used in this study did produce behavioral effects when it was supraliminally presented and therefore cannot be criticized on the grounds that it was inherently too weak to produce measureable effects.

The findings, based upon the use of this operationalization, are consistent with the series processing model of perception (see Figure 1) in that no evidence was found to suggest that subjects responded to the experimental stimuli without phenomenal representation of the stimuli. The series processing model, of course, is inconsistent with the occurrence of subliminally stimulated responses.

The third question to be dealt with is whether the experimental stimuli affected any decision-related variables not measured in this study (e.g. associative or affective processes). While any single study is necessarily of limited scope, the study can be defended in that by its design not only were certain cognitive variables measured but subject attitudes toward the witness, the testimony, and even his or her own participation were measured as well. It is difficult to conceive of a juror's decision-related response which would not be associated with one or more of the measured variables.

The study also indicates that suppression of stimulus recognition by subjects may not be as great a problem as the literature would suggest. While the fact that no difference existed in recognition level between sensitized and non-sensitized groups might be attributed to a

"basement effect," i.e., to stimulus levels too low to allow recognition, it should be kept in mind that two subliminal levels of stimulus intensity were employed which differed greatly in pre-test recognition rate and this mitigates against the "basement effect" argument.

Two findings presented in Chapter III should be recalled at this point. Four methods of coding the level of stimulus intensity variable were applied prior to regression analysis. The method which maximized explained variance in four of the dependent variables was the 1, 1, 1, 2 coding, which makes no distinction between subliminal stimulus presentation and no stimulus presentation. The results of the study are consistent with this preliminary finding in that they suggest no significant effects of subliminal stimulus presentation.

Another preliminary finding was that when level of stimulus intensity was coded 1, 2, 3, 4, the relationship between it and belief of testimony was non-linear. The reason for this may now be clear. If the reactions of subjects in the supraliminal groups differ, as they do, from subjects in the other groups, a linear relationship between these variables cannot be expected. However, when the supraliminal groups are coded "99" for level of stimulus intensity and thus mathematically placed farther from the centroid of the other groups, the distinction between a linear relationship and a non-linear one becomes clouded.

Therefore the finding of a non-linear relationship when one coding scheme is employed and the finding of no non-linear relationship when another coding scheme is employed is quite understandable.

The most paradoxical element among the findings of the study as they apply to the use of video technology in courts is that although the inclusion of subliminal messages themselves in testimony was not found to alter viewer response, the suggestion that messages might be present (whether they were or not) did alter response. The unexpected occurrence of this relative of the placebo effect is troublesome when considered in the context of video presentations to jurors. However, even in traditional trial formats, prejudicial suggestions may alter juror response and one can hardly expect that modifying the medium of testimony presentation will cure all problems. The results presented and discussed herein suggest that video tape presentation of testimony may be employed in courts without fear of effects from interjected subliminal messages. Other researchers who propose to study this problem might consider investigating the problem using different operationalizations of both the stimulus message and the sensitization manipulation in order to broaden the applicability of the findings.

APPENDIX A

Transcript of Testimony

Transcript of Testimony

The interview presented here is a verbatim transcript of the video taped testimony used in preparing the stimulus tapes for this experiment. Three persons participated in this interview. Ed Stein, attorney for the plaintiff, poses the bulk of the questions. Mr. Stein's remarks are prefaced by the initial "S." The witness, Robert Montague (played by actor Phil Heald), has his responses prefaced by the initial "M." Larry Owen is attorney for the defendant. Mr. Owen plays a minor part in this interview; his remarks are indicated by the letter "O."

Each of the fourteen instances of testimony selected for use in the final experiment is indicated by its question number on the dependent variable measuring instrument.

Transcript

S: Would you state your full name for the record, please.

M: Robert Montague.

S: Mr. Montague, I guess you know I represent the plaintiff in this lawsuit and I'll be asking you some questions about the accident which is the subject of this suit. If you don't understand any question that I ask you, you be sure to tell me, O.K?

M: O.K.

S: Let the record further show that this deposition is taken for all uses permitted by the Michigan General Court Rules. What is your address?

M: 11054 Upton Road, Wacousta.

S: And how long have you lived there?

M: Four years.

S: Where did you live before you lived at that address?

M: Well, I was stationed in the army at St. Louis, Missouri.

S: And how long were you in the service?

M: Three years.

S: Honorable Discharge?

M: Right.

S: Where did you work or what did you do before you went into the service?

M: Well, I just got out of school.

S: And where was that that you went to school?

M: Grand Ledge High School.

S: Are you married?

M: Yes.

S: And how long have you been married?

M: Six years.

S: Children?

M: Yes.

S: And how many children do you have?

M: Two.

S: Where do you work, sir?

M: Liquipane Fuel Services, Incorporated.

S: And how long have you worked for Liquipane Fuel Services?

M: Two years in October.

S: Did you do something between the time you came out of the service and the time you went to work for Liquipane?

M: Yes.

S: And what was that?

M: Uh, let's see, uh, I worked for another propane company for about, uh, a year and a half, I believe, and then I did roofing for about a year...

S: ...And then you came to Liquipane?

M: Right.

S: What are your duties with Liquipane Fuel Services; what are your job duties?

M: Driver.

S: Is that the job you've always had?

M: Right.

S: That would be a truck driver?

M: Right.

S: Do you drive different types of trucks?

M: Well, I was on a stake truck and now I'm transferred to a semi.

S: At the time of the accident you were driving a stake truck?

M: Stake truck. (1)

S: Is that the truck used in delivering propane tanks?

M: Right.

S: Was that its only use...for delivering tanks?

M: Well, it was a, uh, rented truck but it was used for propane.

S: Is that the only product your company sells?

M: Right.

S: And how was the propane packaged?

M: In...containers.

S: In tanks?

M: Right.

S: Are there various sizes of tanks?

M: No, it was all one size tank.

S: And what was that size?

M: Hundred pound cylinders.

S: And when you say a hundred pounds, is that full?

M: No, that's how much gas they put in there...it weighs about a hundred and seventy pounds full.

S: Now what kind of a truck were you driving at the time of the accident that this lawsuit concerns? What kind of truck was it?

M: Make and model?

S: Yes.

M: It was a Ford stake.

S: Do you know the year?

M: I believe it was a '72 or '73.

S: And did that truck have a flat bed on it?

M: Right.

S: And then stake sides?

M: Right.

How big was the bed? What would it measure length and width?

M: Um, it's about a seventeen foot bed on it.

S: That would be seventeen feet long?

M: Right, the bed.

S: And how wide would it be?

M: Seven foot. That's just guessing. I don't know.

S: And this would be loaded with propane gas cylinders?

M: Right.

S: And how were these cylinders loaded? Were they upright?

M: Right.

S: Just one level of cylinders, upright?

M: Right.

S: And that was the truck you were driving on February 9, 1973 when this accident occurred, when Mr. Hickson was injured?

M: Was it '73 or '72?

S: I think it was '73.

M: Maybe it was that...it must have been.

S: That would have been a year and a half ago.

M: Right, right.

S: That was the truck you were driving?

M: Right.

S: The Ford. You had driven that truck before in your employment?

M: Yes.

S: And how long had you been driving that truck at that time?

M: Well, I'd been driving it ever since they'd leased it. Uh, I don't know when they leased it.

S: Was it a matter of months--several months?

M: Well, let's see...yes, it was months, I know.

S: Was that truck assigned to you?

M: Right.

S: And how often would you drive that truck? Would it b- every day?

M: Every day.

S: Work a five day week?

M: Six days during the winter.

S: Would you be responsible for loading the cylinders on the truck, or was that done by somebody else?

M: That was done by the dock crew.

S: So your responsibility was to take the loaded truck out to the site where the propane was to be delivered?

M: Right.

S: And whose responsibility was it to unload the truck? Would that be your responsibility or the people who were buying the propane?

M: Well the responsibility...it could go either way... you know, uh, a construction job where you're just unloading them and put it on the ground, then you do it...

S: Yes...

M: But...they were lifting them up on the roof...and uh... you know, you'd be taking work away from them so, you know...

S: So sometimes you would unload them and sometimes the workmen at the construction site would unload them?

M: Right.

S: And what were these used for?

M: Temporary heat.

S: Were they used for any other reason that you know of?

M: No.

S: This would be to heat the building while it's being constructed?

M: Right.

S: On February 9, 1973 you delivered a load of these propane cylinders to a construction site where Mr. Hickson was employed, is that correct?

M: Yes.

S: John Hickson.

M: I guess that's his name. I don't know him.

S: Well, where was that construction site? Do you recall that?

M: Twenty-eighth Street and Division Avenue, in Grand Rapids.

S: Do you recall what was being constructed at that time?

M: A high-rise apartment building.

S: And you'd made deliveries to that construction site before?

M: Right.

S: And do you recall on how many occasions you would have made deliveries of cylinders to that construction site?

M: I'd say at least four...four or five times...prior to that, I believe. I know we made a lot of trips up there.

S: And on each previous trip would you deliver a whole truckload of propane cylinders?

M: I'd say at least...fifty per delivery.

S: Would that be considered a truckload--fifty?

M: Right. (2)

S: Now on the previous occasions, before this February 9, 1973 date, when you had delivered the cylinders to this construction site, how were they unloaded? Did you do it or did the construction workers do it?

M: Well...it must have been unloaded that way once before... because they had empties in the building up on top... I can't remember if they carried them up there or not, it was a long time ago.

S: Now, what do you mean they had empties up on top?

M: Well, you know, they were taking four tanks up and then they'd let four tanks down. Take four full ones up and then they'd let four empties back down.

S: They were doing that on February 9th?

M: Right.

S: How were they lifted up?

M: Overhead crane.

S: And how high were they being lifted?

M: I'd say...at least five stories, four or five, something

like that.

S: And they would be used up there...at that location?

M: Right, throughout the building they were using them.

S: And you indicated that you don't recall on the previous occasions whether they had lifted them up with the overhead crane?

M: Well, uh, like I said, they had empties up there. They could have carried them up there or they could have lifted them up off the ground, you know.

S: Where was the crane mounted? Was the crane mounted on the building itself or was it a stationary crane on the ground?

M: Every floor the crane was just on that floor, you know.

S: So the crane was up on the building itself?

M: Right. It wasn't on the ground; it was on the building.

S: And was somebody operating the crane from its location in the building?

M: Right, he sits right on the back of it and then he's got a guy who looks over the side of the building down at the ground, you know, that gives him hand signals and that.

S: Why don't you explain in a little more detail how that works? You've got a crane operator up in the building,

M: Right, sits way back on the end of it...

S: O.K.

M: And then the boom stretches out from the building...

S: Outside of the building...

M: And the crane runs down.

S: And are these cylinders hooked onto the cable and then lifted up with the crane?

M: Right.

S: And how was it hooked on to the cylinder? How was the cable hooked onto the cylinder?

M: Oh they had a...a choker, I believe they call it. It's a cable, a wire cable.

S: And that goes around the cylinder?

M: And then it hooks right on the end, right.

S: And how does it hook onto the cylinder? How is it attached to the cylinder?

M: I believe they were hooking it through a collar.

S: What part of the cylinder is the collar?

M: The top.

S: And it went through the top?

M: Right.

S: Was there a hook on the end of the cable, or something like that?

M: Well, it had two. You know, where it had been looped around and tied they hooked it right on the hook of the crane.

S: And then they just pick it up?

M: Right.

S: One hook for each cylinder?

M: No, I believe they were hooking four up...running (3) the cable through four of them and then hooking both ends...

S: Then they'd lift all four up?

M: Right.

S: And somone up there would unload them?

M: Right.

S: And then they'd send you four empties back down?

M: Right.

S: Were these being lifted right from the bed of the truck?

M: The full ones?

S: Yes.

M: Yes.

S: And where were the empties being deposited?

M: Right in the bed of the truck.

S: So these cylinders weren't going to the ground first and the full ones weren't going to the ground first, is that right?

M: Yes.

S: Now before this accident occurred to Mr. Hickson, how many of the fifty or so cylinders on your truck had been lifted up by the crane?

M: I would say that there were four or five lifts made.

S: So that would be sixteen or twenty cylinders?

M: Right.

S: And sixteen or twenty empties would have been brought down then?

M: Right. (4)

S: Now, how high is the bed of the truck off the ground?

M: Off the ground?

S: Yes.

M: I'd say about...four and a half foot. (5)

S: And is there some kind of a gate at the end of the bed?

M: Right.

S: And what kind is that?

M: It's a hydraulic lift gate.

S: And is that used when you're lowering cylinders down to the ground, when you just want to put them on the ground?

M: Right, or bringing the empties back up.

S: Now were you helping in hooking the cylinders onto the cable?

M: At the beginning I was.

S: And were you on the bed of the truck?

M: Right.

S: Before you started that, as you drive the truck, is the hydraulic lift gate up to the level of the bed or is it down?

M: It folds underneath the truck.

S: And that's how it was when you brought the truck to the site?

M: Right.

S: Now when you got to the site, how were you directed to put your truck where those people wanted it?

M: Well, they were unloading them onto the ground and I'd let the tailgate and everything up and release the tailgate and then...let it up getting ready to unload and then they decided to just go ahead and unload them off the truck and lift them up onto the bed.

S: When you pulled into the site, did you check with somebody to see where they wanted the truck?

M: Yes.

S: And who was that?

M: Uh...the job superintendent.

S: Do you remember his name?

M: Well, I know his nickname's Art. (6)

S: Art?

M: Art.

S: And did Art tell you where he wanted the tanks?

M: Yes sir.

S: And at that time did he tell you whether they were going to lift them off the ground with the crane or just unload them onto the ground?

M: At that time I believe we were to put them on the ground.

S: And then you positioned your truck near this building where he told you to, is that right?

M: Right.

S: And did you speak to Art after that....fter he told you where to put the truck?

M: No, I believe he sent the laborer out there to tell me.

S: Do you know the laborer's name? Was that the fellow that was injured?

M: I think it was.

S: Were there more than one laborer working on this loading and unloading?

M: That day, no.

S: So it was just that laborer and we know his name is Mr. Hickson and you were there?

M: Right.

S: And who decided to have them lifted up by the crane?

M: Must have been the job superintendent.

S: Did somebody inform you of that...that they would be lifted up by the crane?

M: Right.

S: And you think it was Art?

M: ...No, I would say it would be the labor foreman.

S: Do you know who that was?

M: Jack.

S: Jack?

M: Right.

S: When you first positioned your truck, the tailgate was folded up underneath the truck, is that correct?

M: When I first drove my truck to the site the tailgate was folded up underneath the truck, right.

S: And Art told you where to put your truck?

M: ...Yes sir.

S: And when you put your truck where he told you to put it the tailgate was still folded underneath?

M: Yes sir.

S: Did you then unfold the tailgate?

M: Right.

S: And how do you do that? How does one do it?

M: Well it's got a lever, you let it all the way down and then it's a two-piece tailgate and it flips over and you just raise it back up.

S: Where's the lever located?

M: On both sides, it has a control on both sides.

S: You can use either control?

M: Right.

S: You can't do it from the cab of the truck?

M: No.

S: And the gate is hydraulically operated?

M: Well...I don't know if it was hydraulic or...I believe they were electric..electric gate...but it had a hydraulic cylinder on it.

S: Do you have to do any work by hand or do you do it all from the control?

M: The only part you do by hand is when you flip the other section over, you know, after you let it down when

it's folded up.

S: So the first thing you would do then when you got to the controls is to let it down.

M: Right.

S: What controls were you operating at that time? Would those be the ones on the driver's side or the passenger's side?

M: I'd say the driver's side.

S: And did you let the gate all the way down?

M: Right.

S: And did you then flip it over?

M: Right.

S: Was Mr. Hickson there at this time then you were lifting the gate down?

M: No, but I'm sure that he seen that I did it.

S: Well, at the time you were letting the gate down were you intending to take the cylinders off the truck and put them on the ground or did you then know that you'd have to use the crane?

M: No, I was under the intention that we were to put them on the ground.

S: Well, after you flipped the tailgate over, did you then lift it up with the controls?

M: Right.

S: And how high did you lift it?

M: All the way up...level with the bed.

S: That would be, what did you say, four or five feet

off the ground?

M: Four or four and a half.

S: What happened then, after you got the tailgate lifted up level with the bed of the truck?

M: I believe they changed their minds about where they wanted to unload the tanks.

S: They decided to use the crane?

M: Right.

S: And I guess you told me Jack told you that?

M: I wouldn't swear to it.

S: Somebody told you.

M: Somebody told me.

S: Had you unloaded any of them before you were told they were going to use the crane or had anybody unloaded any?

M: No.

S: Now what happened after you were told the crane was going to be used?

M: I just waited for them to bring the boom down to take them up.

S: When you were positioning the gate, where was Mr. Hickson?

M: I don't remember.

S: Well, was he on the truck? Do you remember that?

M: I don't know if he was or not.

S: You don't remember when he got on the truck?

M: No, I don't.

S: You do remember that he wound up on the bed of the truck at some point?

M: He was up there from the first...when we first sent them up...the first load going up...he was there hooking them up.

S: Now you indicated that you helped Mr. Hickson at first.

M: Right.

S: What did you do?

M: Helped him feed the cable through the collars.

S: Of the four cylinders?

M: Right.

S: That means you would have to have gotten up onto the bed of the truck.

M: Right.

S: How did you get up there?

M: I believe I climbed up on the side.

S: Over the panels, you know, the stake sides?

M: Holding on to the side and throwing your foot up on to the back.

S: Well, would you have had to position yourself on the gate in order to get on the bed or did you just get right onto the bed? Do you understand my question?

M: No.

S: As you were getting on the truck, did you stand on the gate at any time...on the tailgate?

M: When I got on the truck?

S: Yes.

M: I'm trying to remember...I believe they've got a little step-like thing or something that you step on.

S: On the tailgate?

M: Below the tailgate.

S: I see, well, do you have to put your feet on the tailgate?

M: I would say I put my foot on the gate, yes.

S: And then up onto the bed?

M: Right.

S: Now at that time that you got on to the truck, was the tailgate level with the bed?

M: Right. (7)

S: It was?

M: Right.

S: And how long did you remain on the bed of the truck?

M: I'd say about five or ten minutes.

S: And were you up there when the first group of four was being lifted up?

M: Right.

S: Did you stay there long enough for the first group of four empties to be brought down to you?

M: No, because when they lifted them up I got off the truck.

S: And how did you get off the truck?

M: I jumped down. (8)

S: From the back end?

M: Right.

S: Did you have to step on the tailgate at that time?

M: No, I wouldn't say so because there's about a foot from where the sideboard ends to the gate.

S: Now, do you recall when you got off the truck whether or not the tailgate was even with the bed of the truck?

M: It was even with the bed, yes. (9)

S: Now what did you do after you got off the truck?

M: I went over to the fire barrel.

S: And how far away from the truck is that?

M: I'd say about six or seven foot.

S: Were you watching Mr. Hickson load and unload these cylinders?

M: Right.

S: Did he do all the work by himself after you got off the truck?

M: No, I believe I helped him hook a couple more up.

S: You got back up on the truck and helped him and then got back off?

M: Right.

S: What period of time elapsed from the time you and Mr. Hickson first started with the first group of four cylinders until he was injured?

M: How long had he been on the truck?

S: Yeah.

M: Oh...I'd say...approximately...twenty minutes.

S: And you had made several trips on and off the truck?

M: Right.

S: Did you usually go over to the fire barrel to warm up between work?

M: Yes, then the guys at the fire barrel started telling me "Hey, you'd better stop hooking them up, we'll have the union out here." They were crane operators.

S: Then you decided not to help any more?

M: Right.

S: How many of these cylinders did Mr. Hickson do by himself before his injury, if you recall?

M: I can't recall.

S: Now did you at any time change the location of the tailgate?

M: Right.

S: And when was that?

M: I believe it was after the first time after I got off the truck.

S: And what did you do to change the tailgate?

M: Just let it down halfway so I could step from the ground onto the tailgate and the tailgate right up onto the bed. (10)

S: Now when you did that did you tell Mr. Hickson that you had done it?

M: No, but I'm sure that he saw that I did it.

S: But your recollection is that you did not tell him that you did it?

M: I didn't tell him that, no.

S: And that would have put the tailgate about two feet off the ground?

M: I'd say...center of the ground...bed of the truck... it would be about two feet, yes.

S: And then there would be a two foot difference between the bed of the truck and the tailgate?

M: Right.

S: Did Mr. Hickson get off and on the truck or did he...

M: Oh, I'm sure he got off and on the truck because it was mighty cold.

S: Do you remember him getting off and on the truck?

M: I would say that he got off the truck, yes.

S: Well, do you specifically remember him getting off and going over to the fire barrel?

M: No, I don't.

S: Now were you at the fire barrel when this accident occurred?

M: Right. (11)

S: Were you watching him?

M: Yes, but I didn't actually see him fall.

S: You didn't see him fall. Now you saw him working before then getting these cylinders hooked on to the cable...

M: Right.

S: And as he was doing that what direction was he facing, would he be facing the front of the truck?

M: Front of the truck.

S: So the tailgate would be to his back. The tailgate would be in back of him.

M: Well I wouldn't say that he was facing the front of the truck all the time, no.

S: Were there times when he was facing the front of the truck?

M: Yes.

S: The tailgate to his back?

M: Yes.

S: And how far were the full cylinders away from the end of the bed of the truck?

M: I'd say about four foot.

S: And where were the empties being placed?

M: On the side.

S: So there would be four feet between the full cylinders and the end of the bed. Was that in the beginning or was that at the time of Mr. Hickson's injury?

M: That would be at the beginning.

S: Did that distance increase as he was...

M: Oh, I would say so. I would say we sent more up than came down.

S: Well you indicated to me that every time you sent four up, four came down.

M: Well sometimes four came down, sometimes three, whatever they had ready at the time.

S: At the time Mr. Hickson was hurt, what was the distance between the full cylinders and the bed of the truck?

M: I'd say a good four foot.

S: And did Mr. Hickson have to lift the cylinders or move them around on the bed of the truck to get them hooked up?

M: Right.

S: When you were helping him were you also lifting them?

M: Rolling them.

S: You rolled them?

M: Rolling.

S: Do you ever have to actually lift them up or are they too heavy for that?

M: No, that's what the tailgate's for.

S: They're too heavy to actually lift up.

M: For one man.

S: Now you indicated you actually didn't see Mr. Hickson fall, is that it, you didn't actually see him fall?

M: Well, I seen him but I didn't actually think he fell. I didn't think he fell. I seen him walking backwards and he's holding on to the side, walking backwards, looking up, you know, watching for the tanks...you know, in case the cable broke, or something, and he just kept stepping backwards.

S: And then what happened?

M: I guess he fell.

S: Did you see him stumble or fall?

M: I wouldn't swear to that, no.

S: Did you see him after he fell?

M: I wouldn't swear to that, no.

S: Well, do you recall seeing him down on the tailgate as if he had fallen on to the tailgate?

M: I believe I seen him sitting on the gate.

S: Do you recall whether you saw any tanks along with him on the gate?

M: No, there was no tank on the gate.

S: Now you say you saw him backing up and looking at... and looking up at some point in time?

M: Right.

S: Do you know that's the point in time just before he fell?

M: Right.

S: All right, how do you know that if you didn't see him fall?

M: Well, it's a long time ago, there's a lot of stuff I can't remember.

S: Do you know at the time you saw him backing up if he was holding on to a tank, if you recall?

M: I don't believe he was holding on to a tank.

S: To the best of your recollection, he didn't have a tank?

M: No.

S: He seemed to be looking up at the boom.

M: Right.

S: Now if the boom had fallen, had come down, and nobody had grabbed a hold of it, it had just come down and hit the bed of the truck, where would it have hit with respect to the end of the bed of the truck? Do you understand my question?

M: Do you mean if the cable broke?

S: No. If the operator would just have let the cable all the way down and so it rested on the bed of the truck.

M: Where would it have hit?

S: Yes.

M: Well you know they could put it any place they wanted to put it.

S: Were they changing the position of the boom?

M: Yes, every time they'd lift it up.

S: So they moved the boom backward or forward?

M: They lifted it up and then it would move back on to the rail of the boom.

S: So it changed each time they did it?

M: Right.

S: I take it if the end of the cable were to come down to be useful it would have had to have come down somewhere in that four foot area you told me about between the cylinders and the end of the bed of the truck?

M: Right.

S: And that would have been seven feet wide--that area--that width of the bed?

M: It would have varied, uh, I was putting empties on the side too, you know.

S: Now you were at the fire barrel at the time that Mr. Hickson fell, is that correct?

M: Yes.

S: Were there any other people there with you?

M: Yeah.

S: Do you recall who they were?

M: Uh, it was a crane operator and his oiler, or his helper or whatever he's classified as.

S: Do you know their names?

M: My company has their names, yes.

S: You don't know them.

M: No.

S: Now is it your standard procedure when you go out to these construction sites, or when you go out to this site in particular, and you're having cylinders hoisted up as you were in this case with the crane, is it your standard procedure to leave the tailgate all the way up level with the bed, leave it in between, or leave it all the way down? Do you have a standard procedure that you usually follow?

M: You could leave it any way you wanted to. (12)

S: There is no procedure you follow all the time?

M: No.

S: So sometimes you would leave it up, sometimes you would leave it in the middle, and sometimes you would leave

it down, is that right?

M: Right.

S: I take it with respect to this truck and this delivery there was never an occasion when you actually lowered any of the tanks down with the tailgate on this particular delivery?

M: On this delivery?

S: Right.

M: No, but...

S: Go ahead.

M: Well on other deliveries before this, this guy had helped me before, where, uh, we just unloaded them on to the ground...put them on the tailgate and let them down, put the full ones off and put the empties on and raised it back up.

S: You recall that Hickson had helped you previously?

M: I'm positive it was the same one.

S: Now on those occasions, the previous occasions, would you then have to roll the cylinder from the bed on to the gate, lower the gate, and then roll it off on to the ground?

M: Well, put about eight tanks on the gate, you know, roll them along the bed of the truck to the gate, and then put them down.

S: Then roll them off.

M: And take them all off, put the empties on, bring them back up.

S: Now do you recall whether or not Hickson had ever unloaded tanks when you used a crane on previous occasions?

M: I don't know if this was the first time we used a crane or not.

S: So you don't recall whether or not Hickson had ever done that.

M: No, I don't.

S: But you do recall that he had helped on deliveries where you took them off on to the ground.

M: Well, I wouldn't swear to it, but, I know that some laborers helped me. I would say that he would have been one of them.

S: Now on those occasions where you lowered them down on to the ground, when you were rolling them from the bed to the tailgate, you would keep the tailgate even with the bed, is that correct? As you were rolling them on to the tailgate?

M: Right.

S: Until you got the tailgate loaded with as many as you wanted on.

M: Right.

S: Would it then be you who would work the controls and lower them down to the ground?

M: Me or whoever was closest to them.

S: Somebody would.

M: Somebody.

S: Then you'd roll them off?

M: Right.

S: Then you'd lift the gate back up to the level of the bed?

M: Right.

S: And then load the gate again, is that right?

M: Right.

S: Well I take it that there was nothing that you knew of that was wrong with the lift gate on this day... it was working the way it was supposed to be working?

M: Right. (13)

S: And you were aware at this time that the gate was not level with the bed of the truck?

M: Right.

S: Is the truck that you were driving at the time of this accident still in your fleet, or a similar one?

M: I don't believe it is, uh, in the winter time when we get busy, then they will rent trucks.

S: Do you have similar ones out in your yard?

M: You mean a Ford like that, no.

S: Do you have similar stake trucks with lift gates on the back?

M: That folded up underneath?

S: Yes.

M. No.

S: You don't?

M: No.

S: That's your busy season in the winter time...

M: Right.

S: So the tanks can heat whatever needs heating?

M: Right.

S: Was this building open or closed?

M: Well it was under construction.

S: Well, are these just the heaters that heat various areas of construction so the workers can...

M: Oh, it wasn't for the workers; it was for the cement.

S: The workers come last?

M: Yes, always.

S: Now as I understand it then there would have been several of these loads that went up after you put the gate halfway in between the ground and the bed of the truck?

M: Right.

O: Well, what do you mean by several...I think you just answered four or five.

S: Yes, more than one.

M: Right.

S: Now do you recall the weather on that day? You indicated to me that it was very cold as you recall it. Do you recall if it was snowing or windy?

M: Well I know it was windy, yes.

S: Do you know if it was snowing or not? Do you recall that?

M: I don't know if it had snowed then but it had snowed the night before and there was snow on the truck bed.

S: Did you go over to Hickson after this accident occurred and talk to him at all?

M: No. (14)

S: Do you know what happened to him?

M: No.

S: You don't know where he went?

M: No.

S: You don't know whether he walked under his own power?

M: No, I don't

S: Did you finish unloading the truck or did someone else come over?

M: The two crane operators finished.

S: And then you drove away?

M: Right.

S: Now were you sent out there by your supervisor or your foreman to make that delivery?

M: Right.

S: And who was that?

M: That would be Steve Richardson.

S: And he's a foreman, is that his position?

M: Dispatcher or foreman.

S: What time of day was it when you left the premises to take that load out?

M: I can't recall.

S: Do you know if it was in the morning, afternoon? Was it your first run of the day?

M: It would be in the morning, yes.

S: Do you recall if it was your first run of the day?

M: I would say so, yes.

S: And do you have some approximation of the time that the accident itself occurred?

M: I would say between ten and eleven...thereabouts... could have been earlier, I don't know.

S: What's your general workday like? What time do you generally come to work?

M: Well it depends on...it could be anywhere from six in the morning to eight in the morning, you know, starting time, until about four-thirty or five in the afternoon, depending on when you started.

S: Then you would get the fully loaded truck to take out?

M: Right.

S: Are these loaded at night or what?

M: At night. Well, sometimes you'd...you know...if ...taking two loads out...

S: What do you mean by two loads?

M: Two loads a day.

S: That would be your normal workday--two loads?

M: Two truckloads...depending upon how many stops you made.

S: And in this case you were driving a full truckload to the one construction site?

M: Right.

S: I don't think I have anything further.

O: I have no questions.

APPENDIX B

First Pre-test Questionnaire

First Pre-test Questionnaire

According to Mr. Montague's Testimony:

1. How long had Mr. Montague lived at his given address?
2. How long had he been married?
3. How long had he worked for Liquipane Fuel Services, Incorporated?
4. What kind of truck was Mr. Montague driving at the time he gave his testimony?
5. What kind of truck (make and year) was he driving at the time of the accident?
6. How much did the cylinders weigh when empty?
7. What was the size of the bed of the truck (in feet, length by width) of the truck he was driving?
8. Did he load the truck with propane cylinders each day?
9. What was the date of the accident?
10. How many cylinders did the truck hold when fully loaded?
11. How many tanks could be lifted at one time by the crane at the accident site?
12. Before the accident, how many empty cylinders had been lowered from the building?
13. How high was the bed of the truck from the ground?
14. Where was the lift gate when he drove the truck to the work site on the day of the accident?

15. Who did he check with at the work site to see where the truck should be placed?

16. When he first drove the truck to the work site where was the lift gate positioned?

17. When he put the truck where he was told to put it what was the position of the lift gate?

18. What did he do to the lift gate after putting the truck where he was told to put it?

19. Who told him that the crane would be used to lift the tanks into the building?

20. What was the position of the lift gate just before the decision was made to use the crane to lift the cylinders?

21. Where was Mr. Hickson when Mr. Montague was positioning the lift gate?

22. When Mr. Montague got on the truck to help Mr. Hickson unload the cylinders, what was the position of the lift gate?

23. How long was Mr. Montague on the bed of the truck at first helping Mr. Hickson?

24. How did he get off the truck after helping Mr. Hickson at first?

25. When Mr. Montague got off the truck after helping Mr. Hickson the first time, what was the position of the lift gate?

26. How far away from the truck was the fire barrel?

27. How much time passed between the time Mr. Hickson first started helping load cylinders and the time he was hurt?

28. How many cylinders did Mr. Hickson load by himself before being hurt?

29. After the first load was lifted by the crane, when did Mr. Montague change the position of the lift gate?

30. What change in the lift gate did he make at this time?

31. What did Mr. Hickson do after initially getting on the truck?

32. What direction was Mr. Hickson facing when he was hooking the cylinders on the cable?

33. What did Mr. Montague say he saw at the time of the accident?

34. What was Mr. Hickson holding at the time of the fall?

35. Where was Mr. Montague at the time of the accident?

36. What was the standard procedure concerning the position of the lift gate when making deliveries?

37. Had Mr. Hickson helped Mr. Montague in unloading cylinders before the date of the accident?

38. What was wrong with the lift gate at the time of the accident?

39. Does the propane company have this truck or a similar one still in its fleet?

40. What was the weather like at the time of the accident?

41. What did Mr. Montague do to or with Mr. Hickson after the accident?

42. What did Mr. Montague know about what happened to Mr. Hickson after the accident?

43. What was the name of Mr. Montague's dispatcher or foreman?

44. What run of the day was the one during which the accident occurred?

45. What was the time of the accident?

ANSWER SHEET

No.	Answers	Answer (write in correct letter)	Do you believe this piece of testimony? (Circle one)	How important is this piece of testimony to the total testimony? (Circle one)
				Key: 1 = extremely unimportant 2 = unimportant 3 = a little unimportant 4 = neither important nor unimportant 5 = a little important 6 = important 7 = extremely important
1.	a. 2 yrs. b. 3 yrs. c. 4 yrs. d. 6 yrs.	_____	Yes No	1 2 3 4 5 6 7
2.	a. 2 yrs. b. 3 yrs. c. 4 yrs. d. 6 yrs.	_____	Yes No	1 2 3 4 5 6 7
3	a. 2 yrs. b. 3 yrs. c. 4 yrs. d. 6 yrs.	_____	Yes No	1 2 3 4 5 6 7

4.	a. semi b. stake c. tank d. he didn't say	____	Yes	No	1	2	3	4	5	6	7
5.	a. '72 or '73 Ford b. '72 or '73 GMC c. '70 or '71 Ford d. '70 or '71 GMC	____	Yes	No	1	2	3	4	5	6	7
6.	a. 50 lbs. b. 70 lbs. c. 100 lbs. d. 170 lbs.	____	Yes	No	1	2	3	4	5	6	7
7.	a. 50 ft. x 17 ft. b. 50 ft. x 7 ft. c. 17 ft. x 7 ft. d. 7 ft. x 7 ft.	____	Yes	No	1	2	3	4	5	6	7
8.	a. yes, every day b. no, every other day c. yes, twice a day d. no, dock workers loaded it every day	____	Yes	No	1	2	3	4	5	6	7
9.	a. Feb. 9, 1972 b. Feb. 9, 1973 c. Oct. 26, 1972 d. Oct. 26, 1973	____	Yes	No	1	2	3	4	5	6	7

10. a. he didn't know b. 5 c. 50 d. 150	____	Yes	No	1	2	3	4	5	6	7
11. a. 1 b. 4 c. 50 d. it varied	____	Yes	No	1	2	3	4	5	6	7
12. a. none b. 4 or 5 c. 16 to 20 d. 50	____	Yes	No	1	2	3	4	5	6	7
13. a. 2 feet b. 4-4 1/2 ft. c. 16-20 ft. d. he didn't know	____	Yes	No	1	2	3	4	5	6	7
14. a. level with the bed and open b. halfway down and open c. halfway down and folded under d. up and folded under	____	Yes	No	1	2	3	4	5	6	7
15. a. nobody b. Mr. Hickson c. Art d. Steve	____	Yes	No	1	2	3	4	5	6	7

16. a. level with the bed and open
    b. halfway down and open
    c. halfway down and folded under
    d. up and folded under ____ Yes No 1 2 3 4 5 6 7

17. a. down and open
    b. up and folded under
    c. down and folded under
    d. up and open ____ Yes No 1 2 3 4 5 6 7

18. a. unfolded it
    b. folded it up
    c. lifted it up then let it down
    d. nothing ____ Yes No 1 2 3 4 5 6 7

19. a. Jack
    b. Steve
    c. Art
    d. he couldn't swear as to who told him ____ Yes No 1 2 3 4 5 6 7

20. a. ground level
    b. 2 ft. from ground
    c. 4 ft. from ground
    d. 6 ft. from ground ____ Yes No 1 2 3 4 5 6 7

21. a. on the truck
    b. didn't position lift gate
    c. inside
    d. he didn't remember ____ Yes No 1 2 3 4 5 6 7

22. a. ground level b. halfway down c. level with the bed d. he didn't remember	____	Yes	No	1	2	3	4	5	6	7
23. a. 5-10 minutes b. 10-15 minutes c. about half an hour d. he didn't remember	____	Yes	No	1	2	3	4	5	6	7
24. a. rode the lift gate down b. climbed down c. jumped down d. stepped down	____	Yes	No	1	2	3	4	5	6	7
25. a. level with the bed b. halfway down c. ground level d. he didn't remember	____	Yes	No	1	2	3	4	5	6	7
26. a. 2 1/2 ft. b. 4 1/2 ft. c. 6-7 ft. d. 15-20 ft.	____	Yes	No	1	2	3	4	5	6	7
27. a. 5-10 minutes b. about 15 minutes c. about 20 minutes d. he didn't remember	____	Yes	No	1	2	3	4	5	6	7
28. a. 1 b. 4 c. 16-20 d. he couldn't recall	____	Yes	No	1	2	3	4	5	6	7

29.	a. after he got off the truck b. after the crane came down the second time c. after he had gone inside d. he didn't arrange it	_____	Yes	No	1	2	3	4	5	6	7
30.	a. nothing b. let it down halfway c. folded it up d. he couldn't remember	_____	Yes	No	1	2	3	4	5	6	7
31.	a. never got off the truck b. got off once c. probably got off but didn't remember d. got on and off several times	_____	Yes	No	1	2	3	4	5	6	7
32.	a. front of truck b. up c. back of truck d. fire barrel	_____	Yes	No	1	2	3	4	5	6	7
33.	a. he saw Mr. Hickson fall b. he wouldn't swear he saw him fall c. the man next to him told him Hickson fell d. he saw Hickson pretend to fall	_____	Yes	No	1	2	3	4	5	6	7

34. a. a tank b. the crane c. the side of the truck d. he didn't think he was holding on to anything	____	Yes	No	1	2	3	4	5	6	7
35. a. on truck b. in cab of truck c. in office d. at fire barrel	____	Yes	No	1	2	3	4	5	6	7
36. a. leave it up b. leave it in the middle c. leave it down d. no standard procedure	____	Yes	No	1	2	3	4	5	6	7
37. a. yes b. no c. he wasn't sure d. he had never made deliveries there before	____	Yes	No	1	2	3	4	5	6	7
38. a. nothing b. short circuit c. hydraulic leak d. levers didn't work	____	Yes	No	1	2	3	4	5	6	7
39. a. yes, same truck b. yes, similar truck c. he didn't know d. no	____	Yes	No	1	2	3	4	5	6	7
40. a. snowy and windy b. clear and calm c. snowy but not sure about windy d. windy but not sure about snowy	____	Yes	No	1	2	3	4	5	6	7

41. a. went to see if he was alright b. talked to him later c. talked to him immediately d. nothing	____	Yes	No	1	2	3	4	5	6	7
42. a. didn't know anything b. knows he went to hospital c. knows he went home d. knows he went back to work	____	Yes	No	1	2	3	4	5	6	7
43. a. Steve Richards b. Richard Stevenson c. Steve Richardson d. Richard Stevens	____	Yes	No	1	2	3	4	5	6	7
44. a. first b. second c. third d. last	____	Yes	No	1	2	3	4	5	6	7
45. a. 6:00-8:00 A.M. b. 10:00-11:00 A.M. c. 2:00-2:30 P.M. d. 4:30-5:00 P.M.	____	Yes	No	1	2	3	4	5	6	7

APPENDIX C

Table 13

Results of First Pre-test

Table 13. Results of First Pre-test

Retention, Belief and Importance Scores for Testimony Items, (n = 25).

No.	Question	Retention (% retaining)	Belief (% believing)	Importance (mean, max.=7.0)	Disqualified by scores*
1	How long Montague Lived at address	24	100	2.08	R,I
2	How long Montague had been married	80	100	1.96	I
3	How long Montague had worked for propane company	72	100	4.32	R,I
4	What kind of truck he was driving at time of testimony	24	100	5.16	R
5	What kind of truck he was driving at time of accident	84	100	4.76	*
6	How much did propane cylinders weigh empty	64	96	5.28	R
7	What was the size of the truck bed	64	92	5.24	R
8	Did Montague load truck each day	80	100	4.16	I

*The letters R, B and I refer to scores on the Retention, Belief and Importance scales respectively.

Table 13 (cont'd.).

No.	Question	Retention (% retaining)	Belief (% believing)	Importance (mean, max.=7.0)	Disqualified by scores
9	What was accident date	68	96	5.68	R
10	How many cylinders did the truck hold	84	92	5.04	*
11	How many tanks could be lifted by crane	84	96	5.08	*
12	Before the accident how many tanks had been lowered	84	96	5.16	*
13	How high was truck bed from ground	92	100	6.00	*
14	What was position of lift gate when truck entered accident site	84	92	4.24	I
15	With whom did Montague check about truck placement	100	96	4.72	*
16	When truck was parked what was tail gate position	84	96	4.56	I

Table 13 (cont'd.).

No.	Question	Retention (% retaining)	Belief (% believing)	Importance (mean, max.=7.0)	Disqualified by scores
17	When truck was parked where told, what was lift gate position	48	96	4.56	R,I
18	What did Montague do to gate after parking truck	68	96	5.40	R
19	Who told him crane would be used to lift tanks	80	76	4.72	B
20	What was gate position just before the decision to use the crane	64	92	5.28	R
21	Where was Hickson when Montague moved the gate	72	84	5.38	R,B
22	When Montague got on truck to help Hickosn, what was gate position	84	92	5.80	*
23	How long did he help Hickson on truck	60	92	5.08	R
24	How did he get off truck	80	100	4.72	*
25	When he got off truck , what was gate position	80	100	5.56	*

Table 13 (cont'd.).

No.	Question	Retention (% retaining)	Belief (% believing)	Importance (mean, max.=7.0)	Disqualified by scores
26	How far was truck from fire barrel	64	96	4.76	R
27	How long between time Hickson was helping and when he was injured	36	84	4.80	R,B
28	How many tanks had Hickson loaded before his injury	56	92	4.56	R
29	After first load was lifted, when did Montague change gate position	48	92	6.04	R
30	How did he change it	80	100	6.16	*
31	What did Hickson do after first getting on truck	68	84	5.48	R,B
32	What direction was Hickson facing while working	76	92	6.16	R
33	What did Montague see at time of accident	100	68	6.25	B
34	What was Hickson holding at time of fall	80	84	6.30	B

Table 13 (cont'd.).

No.	Question	Retention (% retaining)	Belief (% believing)	Importance (mean, max.=7.0)	Disqualified by scores
35	Where was Montague at time of accident	96	100	5.52	*
36	What was standard procedure for lift gate during deliveries	88	96	5.32	*
37	Had Hickson helped unload on previous deliveries	72	96	5.44	R
38	What was wrong with lift gate on day of accident	96	92	5.84	*
39	Is the truck or a similar one still in company's fleet	88	100	4.44	I
40	What was weather like at time of accident	68	100	5.28	R
41	What did Montague do to Hickson after accident	96	80	5.32	*
42	What did Montague know about Hickson after accident	92	76	5.32	B

Table 13 (cont'd.).

No.	Question	Retention (% retaining)	Belief (% believing)	Importance (mean, max.=7.0)	Disqualified by scores
43	What was name of Montague's foreman	24	100	3.48	R
44	Which run of the day was the one on which accident occurred	100	100	3.92	I
45	What was time of accident	80	100	4.64	I
	Mean:	73.78%	93.60%	4.99	
	Std. Dev.:	19.61%	7.65%	.91	

APPENDIX D

Subliminal Stimulation Sensitivity Instrument

Subliminal Stimulation Sensitivity Instrument

The instrument used in the study to measure subjects' sensitivity to subliminal stimulation appears on the following pages. For each statement, the answer which indicates the highest sensitivity to subliminal stimulation is underlined. Letters in parentheses following the response blocks indicate whether the item is taken from the California F Scale (Adorno, Frenkel-Brunswik, Levinson, and Sanford; 1950) or from the Misanthropy Scale (Sullivan and Adelson, 1954), by F and M respectively. It should be noted that the high scoring response indicated for each item is what would be a low scoring response for that item on its original scale.

OPINION QUESTIONNAIRE

This questionnaire consists of forty statements which express opinions. You are to read each statement and then decide how strongly you agree or disagree with the statement. Circle the letter(s) following each statement to indicate your agreement or disagreement as below:

A = Agree or strongly agree

TA = Tend to agree or slightly agree

TD = Tend to disagree or slightly disagree

D = Disagree or strongly disagree

1. It is highly unlikely that astrology will ever explain anything.	A	TA	TD	D	(F)
2. People seem to prefer the most luxurious, extravagant and sensual way of living.	A	TA	TD	D	(M)
3. Sex crimes, such as rape and attacks on children, are signs of mental illness; such people belong in hospitals rather than in prison.	A	TA	TD	D	(F)
4. In order to maintain a nice residential neighborhood it is best to prevent most people from living in it.	A	TA	TD	D	(M)
5. It's only natural for people to sometimes have thoughts about hurting a close friend or relative.	A	TA	TD	D	(F)
6. A major fault of most people is their conceit.	A	TA	TD	D	(M)

7. Young people sometimes get rebellious ideas but as they grow up they ought to get over them and settle down.	A	TA	TD	D	(F)
8. Colleges should adopt a quota system by which they may limit the number of people in fields which have too many now.	A	TA	TD	D	(M)
9. There are many difficulties a person cannot overcome no matter how much will power he has.	A	TA	TD	D	(F)
10. A step toward solving social problems would be to prevent people from getting superior, profitable positions in society, for a while at least.	A	TA	TD	D	(M)
11. One trouble with most people is that they stick together and connive, so that others don't have a fair chance in competition.	A	TA	TD	D	(M)
12. Most people don't realize how much of our lives are controlled by plots hatched in secret places.	A	TA	TD	D	(F)
13. Our social problems are so general and deep that one often doubts that democratic methods can ever solve them.	A	TA	TD	D	(M)
14. People should be willing to overlook failures in manners and unpleasant personal habits in other people.	A	TA	TD	D	(F)
15. Most people tend to lower the general standard of living by their willingness to do the most menial work and to live under standards that are far below average.	A	TA	TD	D	(M)
16. Human nature being what it is there will always be war and conflict.	A	TA	TD	D	(F)

17. Most people should not pry so much into others' activities and organizations nor seek so much recognition and prestige.	A	TA	TD	D	(M)
18. Familiarity breeds contempt.	A	TA	TD	D	(F)
19. Much resentment against most people stems from their tending to keep apart and to exclude others from their social life.	A	TA	TD	D	(M)
20. It would be a good thing if people spent more time thinking and talking about ideas just for the fun of it.	A	TA	TD	D	(F)
21. People go too far in hiding their backgrounds, especially such extremes as changing their names and imitating others' manners and customs.	A	TA	TD	D	(M)
22. In the long run it is better for our country if young people are allowed a great deal of freedom and are not strictly disciplined.	A	TA	TD	D	(F)
23. People should make sincere efforts to rid themselves of their conspicuous and irritating faults if they really want to prevent themselves from being condemned.	A	TA	TD	D	(M)
24. Nowadays more and more people are prying into matters that should remain personal and private.	A	TA	TD	D	(F)
25. War shows up the fact that most people are not patriotic or willing to make sacrifices for their country.	A	TA	TD	D	(M)
26. The businessman and the manufacturer are much more important to society than the artist and the professor.	A	TA	TD	D	(F)

27. There is something different and strange about most people; one never knows what thay are thinking or planning, nor what makes them tick.	A	TA	TD	D	(M)
28. Science has its place, but there are many important things that can never possibly be understood by the human mind.	A	TA	TD	D	(F)
29. People may have moral standards that they apply in their dealings with friends, but with others most of them are ruthless, unscrupulous and undependable.	A	TA	TD	D	(M)
30. One of the most important things children should learn is when to disobey authorities.	A	TA	TD	D	(F)
31. Most poeple seem to have an aversion to plain hard work; they tend to be parasites on society by finding easy, non-productive jobs.	A	TA	TD	D	(M)
32. There is hardly anything lower than a person who does not feel great love, gratitude, and respect for his parents.	A	TA	TD	D	(F)
33. One general fault of people is their overaggressiveness, a strange tendency always to display their looks, manner, and breeding.	A	TA	TD	D	(M)
34. In spite of what you read about the wild sex life of people in important places, the real story is about the same in any group of people.	A	TA	TD	D	(F)
35. People should be more concerned with their personal appearance, and not be so dirty and smelly and unkempt.	A	TA	TD	D	(M)

36. Even though all sorts of people mix together nowadays, you don't have to worry very much about catching an infection or disease.	A	TA	TD	D	(F)
37. People would solve many of their social problems by not being so irresponsible, lazy, and ignorant.	A	TA	TD	D	(M)
38. It's nobody's business if someone is a homosexual as long as he doesn't harm other people.	A	TA	TD	D	(F)
39. It would be best to limit most people to grammar school and trade school education since more schooling just gives them ambition and desires which they are unable to fulfill in competition.	A	TA	TD	D	(M)
40. People can be divided into distinct classes, the weak and the strong.	A	TA	TA	D	(F)

APPENDIX E

Table 14

Results of Second Pre-test

Table 14. Results of Second Pre-test

Characteristics and Threshold Levels of Subjects (N=50)

Sex	Age	U.S. Cit?	Reg. Voter?	Score			Stimulus Exposure (sec.) When Reported
				Auth.	Mis.	Total	
F	28	yes	yes	35	30	65	----
F	22	yes	no	39	33	72	1.30
F	42	yes	yes	44	29	73	----
F	32	yes	yes	41	34	75	1.20
F	33	yes	yes	35	43	78	----
M	29	yes	yes	43	37	80	----
F	26	yes	yes	43	38	81	----
F	24	yes	yes	44	39	83	1.10
F	31	yes	yes	43	43	86	.95
M	27	yes	no	42	45	87	1.10
M	39	yes	yes	46	42	88	----
M	37	yes	yes	37	51	88	----
M	26	yes	no	46	43	89	.70
M	72	yes	yes	46	44	90	----
F	21	yes	yes	43	47	90	1.20
F	21	yes	yes	39	51	90	----
F	23	yes	yes	47	43	90	----
F	28	yes	yes	49	42	91	----

Table 14 (cont'd.).

Sex	Age	U.S. Cit?	Reg. Voter?	Score			Stimulus Exposure (sec.) When Reported
				Auth.	Mis.	Total	
M	22	yes	yes	45	47	92	----
F	30	yes	yes	39	53	92	1.50
F	40	yes	yes	51	42	93	1.10
M	23	yes	yes	53	40	93	.34
F	23	yes	yes	47	46	93	.19
F	30	yes	yes	58	36	94	----
F	22	yes	yes	46	48	94	1.30
F	23	yes	yes	48	46	94	1.30
F	26	yes	no	53	41	94	----
M	27	yes	yes	47	48	95	1.40
F	35	yes	yes	42	54	96	1.40
M	30	yes	yes	46	51	97	----
M	27	yes	yes	47	50	97	1.10
F	55	yes	yes	50	47	97	----
M	29	yes	yes	46	52	98	----
F	21	yes	yes	45	54	99	----
F	21	yes	yes	57	42	99	----
M	25	yes	yes	47	52	99	----
M	45	yes	yes	42	47	99	----
F	21	yes	yes	51	48	99	.90

Table 14 (cont'd.).

Sex	Age	U.S. Cit?	Reg. Voter?	Score			Stimulus Exposure (sec.) When Reported
				Auth.	Mis.	Total	
M	22	yes	yes	49	51	100	----
F	21	yes	yes	52	49	101	----
F	30	yes	yes	50	51	101	1.10
M	26	yes	yes	51	51	102	.70
M	27	yes	yes	58	45	103	----
M	22	yes	yes	56	50	106	1.10
F	22	yes	yes	49	58	107	----
F	37	yes	yes	55	52	107	----
F	25	yes	yes	58	50	108	----
F	27	yes	yes	53	57	110	1.00
M	42	yes	yes	59	55	114	----
F	24	yes	yes	--	--	--	.80

APPENDIX F

Dependent Variable Measuring Instrument

QUESTION SHEET

ACCORDING TO MR. MONTAGUE'S TESTIMONY:

1. What kind (make and year) of truck was he driving at the time of the accident?

2. How many cylinders did the truck hold when fully loaded?

3. How many tanks could be lifted at one time by the crane at the accident site?

4. Before the accident, how many empty cylinders had been lowered from the building?

5. How high was the bed of the truck from the ground?

6. Who did he check with at the work site to see where the truck should be placed?

7. When Mr. Montague got on the truck to help Mr. Hickson unload the cylinders what was the position of the lift gate?

8. How did he get off the truck after helping Mr. Hickson at first?

9. When Mr. Montague got off the truck after helping Mr. Hickson the first time what was the position of the lift gate?

10. What change in the lift gate did he make at this time?

11. Where was Mr. Montague at the time of the accident?

12. What was the standard procedure concerning the position of the lift gate when making deliveries?

13. What was wrong with the lift gate at the time of the accident?

14. What did Mr. Montague do to or with Mr. Hickson after the accident?

ANSWER SHEET

AGE ____

SEX M F

VOTER Y N

U.S. CITIZEN Y N

Question #	Answer (write in letter)	Do you believe this piece of testimony? (Circle one)	How important is this piece of testimony to the total testimony? (Circle one) 1 = extremely unimportant 2 = unimportant 3 = a little unimportant 4 = neither important nor unimportant 5 = a little important 6 = important 7 = extremely important
1. a. 72 or 73 Ford b. 72 or 73 GMC c. 70 or 71 Ford d. 70 or 71 GMC	____	Yes No	1 2 3 4 5 6 7
2. a. didn't know b. 5 c. 50 d. 150	____	Yes No	1 2 3 4 5 6 7

3.	a. 1 b. 4 c. 50 d. it varied	____	Yes	No	1	2	3	4	5	6	7
4.	a. none b. 4 or 5 c. 16 to 20 d. 50	____	Yes	No	1	2	3	4	5	6	7
5.	a. 2 feet b. 4-4 1/2 ft. c. 16-20 ft. d. he didn't know	____	Yes	No	1	2	3	4	5	6	7
6.	a. nobody b. Mr. Hickson c. Art d. Steve	____	Yes	No	1	2	3	4	5	6	7
7.	a. ground level b. halfway down c. level with the bed d. he didn't remember	____	Yes	No	1	2	3	4	5	6	7
8.	a. rode the lift gate down b. climbed down c. jumped down d. stepped down	____	Yes	No	1	2	3	4	5	6	7
9.	a. level with the bed b. halfway down c. ground level d. he didn't remember	____	Yes	No	1	2	3	4	5	6	7

10. a. nothing
    b. let it down halfway
    c. folded it up
    d. he couldn't remember ____ Yes No 1 2 3 4 5 6 7

11. a. on truck
    b. in cab of truck
    c. in office
    d. at fire barrel ____ Yes No 1 2 3 4 5 6 7

12. a. leave it up
    b. leave it in the middle
    c. leave it down
    d. no standard procedure ____ Yes No 1 2 3 4 5 6 7

13. a. nothing
    b. short circuit
    c. hydraulic leak
    d. levers didn't work ____ Yes No 1 2 3 4 5 6 7

14. a. he went to see if he was alright
    b. he talked to him later
    c. he talked to him immediately
    d. nothing ____ Yes No 1 2 3 4 5 6 7

15. Would you please express your overall reaction to the witness, Mr. Montague, by placing an "X" in the most appropriate place on each of the following scales.

trustworthy ____:____:____:____:____:____:____ untrustworthy

qualified ____:____:____:____:____:____:____ unqualified

monotonous ____:____:____:____:____:____:____ dynamic

dishonest ____:____:____:____:____:____:____ honest

likable ____:____:____:____:____:____:____ unlikable

ill at ease ____:____:____:____:____:____:____ composed

believable ____:____:____:____:____:____:____ not believable

16. In watching this videotaped testimony, did you see or hear anything distracting or controversial or damaging to the witness or his testimony? If you noticed anything of this sort, please indicate the number of times in the spaces provided below.

_____ tape spliced or edited

_____ static or snow

_____ different voice dubbed in

_____ picture superimposed over picture

_____ word or phrase superimposed over picture

_____ words "bleeped" out

_____ speaking superimposed over sound

/7 noticed nothing unusual

(check if applicable)

17. What are your reactions to participating in this research exercise?

I found it:

enjoyable	____:____:____:____:____:____:____	unenjoyable
informative	____:____:____:____:____:____:____	uninformative
uninteresting	____:____:____:____:____:____:____	interesting

APPENDIX G

Table 15

Matrix of correlation coefficients

for selected variables

BIBLIOGRAPHY

Table 15. Matrix of correlation coefficients for selected variables. (N = 84)

	ATP	CRED	IMP	BEL	RET	SCORE	MIS	AUTH
Age	-.09	.15	-.14	.03	.20*	-.17	-.28**	-.02
Authoritarianism	.14	.01	-.19*	-.24**	-.19*	.88**	.49**	
Misanthropy	.02	.00	-.22*	-.10	-.33**	.85**		
Score (Auth+Mis)	.09	.01	-.24*	-.20*	-.30**			
Retention	.07	.09	.30**	.11				
Belief	-.08	.44**	-.13					
Importance	.23*	-.09						
Credibility	.17							
Attitude toward Participation								

* $p < .05$
** $p < .01$

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