THE EFFECTS OF MESSAGE INTENSITY ON EVALUATIONS OF THE SOURCE, THE MESSAGE AND THE TOPIC

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ABSTRACT

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by John Joseph Kochevar

This study investigated the effects of variations in message intensity on receiver attitudes toward the message, the topic, and the source of a persuasive message. Message intensity was conceptually defined as the degree to which various linguistic assertions in a message deviated from neutrality. It was operationalized by the substitution of previously rated high and low intensity verbs, adverbs, and adjectives into a basic message. The difference in judged intensity between the high and low intensity message conditions was significant at the .01 level. Hypothesis 1, which predicted that the high intensity message would lead to more attitude change than the low intensity message, was not supported. Hypothesis 2, which predicted that the high intensity message would lead to more polarized evaluations of the message source, was not supported. Hypothesis 3, which predicted that a high intensity message would lead to more polarized evaluations of message characteristics, was not supported. Some evidence indicated that the relationship between manipulated intensity and the dependent variables was not a direct one, and may have been confounded by both extraneous variables and degree of perceived intensity.

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By

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CHAPTER I

INTRODUCTION

In 1955, Osgood, Saporta and Nunnally (1955) reported a new content analytic technique called evaluative assertion analysis. This technique yielded reliable judgments of the meaning intensity of various verbs and adverbs. Using some of these previously rated adverbs and verbs, McEwen (1967) was able to improve attitude change predictions from Osgood and Tannenbaum's (1955) congruity model. Instead of simply allowing the value of the assertion to be associative (positive) or disassociative (negative) as Osgood and Tannenbaum had done, McEwen manipulated the degree of assertion intensity. Using this modification, he demonstrated that when an assertion was of the same degree of favorableness toward the topic, the congruity model predicted attitude change toward the topic more accurately than when the assertion was of a different intensity. Variations in assertion intensity did not improve prediction of source evaluations.

This present study extended McEwen's procedures to a somewhat more complex situation. Specifically, high and low intensity assertions were substituted into a basic persuasive message to create high and low intensity persuasive messages. Receiver reactions to these variations in message intensity were then measured not in terms of the source-concept dyad but in terms of specific attitudes toward the message, the topic, and various qualities of the source.

Message intensity is here defined as the degree to which the assertions in a message deviate from neutrality. This conceptualization is similar to Bowers' (1963) definition of "language intensity" as "the quality of language which indicates the degree to which the speakers attitude toward a concept deviates from neutrality" (p. 345). In each definition, intensity is regarded as a subjective element, with the baseline neutrality a function of each individual judge. Of course, the concept of neutrality refers only to evaluative relations. A completely neutral assertion would imply no relation at all -- a psycholinguistically impossible situation.

Prior Research

Early content analytic studies conceptualized intensity in terms of "emotionalism" and "sentimentalization" (Waples & Berelson, 1941) or referred to the "strength" or "excitement value" (Jacob, 1942) with which the communication was made. Except for the technique of "Evaluative Assertion Analysis" developed by Osgood, Saporta, and Nunnally (1955), most content analytic approaches were used to analyze specific types of war-time propaganda and cannot be generalized to other content because of the confines of category specification.

For example, Waples and Berelson (1941) compiled a list of "emotional" terms applying to war-time propaganda and analyzed the relative frequency of such terms per unit of content. For the analysis of atrocity propaganda, Jacob (1942) developed a "scale of atrociousness," based on group judgments of the abnormality of specific acts or events.

Wright and Nelson (1939) analyzed American newspaper opinion toward China and Japan by having judges rate newspaper statements according to the amount of hostility they perceived. From these judgments, the investigators developed a "hostility scale" and rated relative intensity according to the number of statements occurring at different points on this scale.

Osgood, Saporta, and Nunnally (1955) also used judges' ratings to assess intensity but their method was generalizable to many types of content. Originally, their "Evaluative Assertion Analysis" was developed as an indirect method for measuring communicator attitudes. Osgood (1959) stated, however, that: "it might yield predictions as to the effects on receivers better than inferences as to the intentions of sources" (p. 52). Following this suggestion, this experiment employed verbs and adverbs previously rated by judges using evaluative assertion analysis to generate high and low intensity messages.

The assertion was the principal linguistic construction used by Osgood, Saporta, and Nunnally to index intensity. It consisted of an actor (usually a noun) associated with, or dissociated from, a complement via a verbal connector. An example of an assertion would be the simple sentence: "Bill is a student." Here, "Bill" is the actor, "student" the complement, and "is" the verbal connector. By masking the significant concepts in the message, coders were able to judge the intensity of these connectors and their modifiers with high reliability and not be influenced by their attitudes toward the concept. From this analysis, Osgood (1959) has listed a number of connectors and modifiers which vary in the intensity or degree to which they associate or dissassociate actor and complement. For example,

strong intensity was carried by the verb "to be" (X is a y); weak intensity was carried by connectors which imply only possible or hypothetical relation between actor and complement (x may commit, might agree with, ought to join y). High intensity was implied by the indexing adverbs "absolutely, definitely, and positively; low intensity by slightly, occasionally, and somewhat."

Experimental investigation of the effects of differing intensity messages by Bowers is more relevant to this study than are earlier content analytic approaches. Bowers (1963) examined the effects of high and low persuasive speeches on subjects differing in degree of social introversion. The high and low intensity speeches were generated in four steps:

1. Bowers removed from four persuasive speeches all the words which, in his opinion, indicated an attitude toward the topic of each speech.
2. The words and phrases "indicating attitudes" were replaced by numbered blanks.
3. Judges rated the intensity of a series of words and phrases (also chosen by Bowers) which could be appropriately substituted for the numbered blanks.
4. Four high intensity speeches were produced by substituting words with the highest intensity ratings into all the blanks. The low intensity speeches were created by substituting all low intensity words into the blanks.

Subjects' attitudes toward the topics and speakers were measured before and after exposure to the persuasive speeches.

The following six hypotheses were tested:

1. An interaction of language intensity in speeches and social introversion levels in listeners results in a higher degree of persuasibility among introverts measured by attitude change toward the concepts, than can be accounted for by the two effects considered separately (Results: No significant interaction).

2. Introverted listeners to argumentative speeches change more in their attitudes toward the advocated concepts than do those in a middle group; likewise, the middle group is more persuasible than are the extroverts. (Results: opposite to those predicted. A significant F was found for the main effects of social introversion and the difference between the introvert and extrovert groups was significant at .05. Extroverts, however, changed more than introverts.)

3. Speeches using highly intense language produce greater attitude change toward concepts than do those using language of low intensity. (Results: the only significant F was found for the interaction between intensity and direction of intended influence.)

4. An interaction of language intensity in speeches and social introversion levels in speakers results in a higher degree of persuasibility among introverts, as measured by attitude change toward the speakers, than can be accounted for by the two effects considered separately. (Results: no significant interaction.)

5. Introvert listeners to argumentative speeches change more in their attitudes toward speakers than do those in a middle group; likewise, the middle group is influenced more than are the extroverts. (Results: analysis revealed an interaction between social introversion and combination of speeches. Secondary analysis revealed that there were shifts in attitudes for only two particular sources. The middle group changed positively toward two sources but introverts and extroverts changed negatively. The difference between introverts and extroverts was not significant.)

6. Speeches using highly intense language produce greater attitude change toward speakers than do those using language of low intensity. (Results: No significant effect due to intensity variation.)

Thus, most of the statistical tests of these hypotheses either failed to reach significance or were the reverse of what was predicted. The only significant relationship involving language intensity was the interaction between language intensity and direction of intended influence. Specifically, low intensity speeches caused more attitude change than high intensity speeches for those speeches attacking concepts favored by the receivers. Intensity did not have any effect on attitudes toward speakers who were labeled as a well known college president, a Democratic senator, a prominent home economist, and a university president.

Later, Bowers (1964) examined some of the correlates of intensity by analyzing the words used to generate different intensity speeches in his earlier study. Four variables were positively related to judgments of intensity: number of syllables; obscurity; presence of qualifiers; and metaphorical quality.

A correlation (biserial r = 1.0) between metaphorical quality and judged intensity led to another experiment, this time using only metaphors as an intensity manipulation (Bowers & Osborn, 1966). The investigators compared the effects of persuasive speeches concluding with intense metaphors to speeches which concluded literally. For each speech, the metaphorical conclusion resulted in more attitude change toward both speaker and topic. Attitude change toward speakers varied in direction depending on the specific speaker and topic.

The results of Bowers' two experimental studies were not very clear. First, his experimental designs were too complicated and led to results which could not be interpreted unambiguously. In his first experiment, for example, four different topics, four different speakers and two different directions of advocacy were all varied at the same time. Similarly, varying topics and speakers in his last experiment resulted in a complex interaction that could not be clearly explained. Second, Bowers did not obtain subject ratings of the intensity of the messages. Without such a check, one cannot be sure that the observed effects were the result of intensity manipulations. Third, because Bowers alone chose the words and phrases which indicated attitudes, as well as those to be substituted, it would be difficult for other investigators to replicate his messages. Finally, the use of recorded speeches may have introduced confounding variables into Bowers' intensity manipulations. Intensity in spoken language may be indexed by variables such as volume and inflection as well as specific content. There is no evidence that these variables were controlled or that subjects were instructed to pay closer attention to content.

This present study used written messages with only one topic, one source, and one direction of advocacy. Furthermore, the effect of the intensity manipulation on dependent variables was directly assessed. Finally, words found by evaluative assertion analysis to differ in intensity were used to generate high and low intensity messages. This procedure can be easily replicated by other investigators. These four changes -- written messages, simplified design, direct measurement of the independent variables,

and reproducible procedures -- allowed fairly direct tests of the experimental hypotheses described below.

Hypotheses

The variable "message intensity" was conceptualized in terms of the degree of deviation from neutrality. It was operationalized by the substitution of adjectives, adverbs and verbs previously rated as relatively high and low in intensity into a basic message. Three effects were examined: 1) persuasive impact of the message; 2) evaluation of the source of the message; and 3) evaluation of certain message characteristics.

The hypotheses tested were:

Hypothesis 1: A high intensity message will result in more attitude change in the direction advocated than will a low intensity message.

In this experiment, the high intensity persuasive message made stronger assertions about the topic and advocated more definite changes than the low intensity message. To the extent that subjects perceive these relationships as they read their message, they should also perceive the position of the high intensity message as more discrepant from their beliefs than the low intensity message. In this particular case, it is predicted that the greater discrepancy will result in more attitude change toward the position advocated by the message.

Hovland's (1959) generalizations about the relation between amount of change advocated and actual change support this first hypothesis. He noted that under conditions where there is some ambiguity about the credibility of the communicator, the greater the attempt at change, the

higher the resistance. On the other hand, with respected communicators, the greater the discrepancy between the subject's position and the one advocated, the greater the change. Hovland also noted that for relatively noninvolving issues where expert opinion is highly relevant such as health topics and science, advocacy of positions quite discrepant from the individual's own position will have a marked effect. These generalizations were supported in studies by Hovland and Pritzker (1957), Goldberg (1954), and Zimbardo (1960).

The source of this message was identified as a writer for a major metropolitan daily newspaper. While this source was not of the highest possible credibility, it was believed that this amount of credibility would be high enough to induce attitude change and still avoid incredulity effects. Furthermore, using a moderately credible source allowed subjects some latitude for evaluation and avoided ceiling effects sometimes caused by high credible sources.

This experiment used a message attacking the merits of tooth brushing. Previous studies (e.g., McGuire, 1961) have shown this message to be highly persuasive. While generalizability to other topics is somewhat hindered by use of a cultural truism, the advantages of using such a message were felt to be greater than the disadvantages. For example, the anti-toothbrushing message closely fit Hovland's generalization. It was a health topic, and relatively noninvolving. Under these conditions, differences in discrepancy should be enhanced. That is, subjects responding to the low intensity message would find it less discrepant

with their beliefs than subjects in the high intensity condition. Because the toothbrushing topic would be relatively non-involving, attitude change should vary directly with discrepancy.

Hypothesis 2: A high intensity message will result in more polarized evaluations of the source's credibility than will a low intensity message.

Recent research indicated that people often form impressions of communicators from their messages. Miller and Hewgill (1964), for example, found that as the number of verbal nonfluencies increased, ratings of the speaker became less favorable. In another experiment, Razinsky (1967) found that as errors in spelling, punctuation and grammar increased, source evaluation decreased.

While this evidence demonstrated that people form impressions of communicators from their messages, it is more difficult to predict the favorableness of these evaluations. Experiments by Bowers & Osborn (1966) and Eagly and Manis (1966) showed that attacking persuasive messages caused attitude change in the direction advocated but negative changes toward the source of the message. Because the message used in this proposed experiment will be an attack on toothbrushing, a concept favorably valued by the public, it would seem logical that similar effects should be found. Unfortunately, certain other characteristics of the experimental topic make this situation more complex.

McGuire's attacks on cultural truisms such as toothbrushing were highly effective because most subjects were poorly prepared to defend their beliefs about such topics. Under these conditions, then, it is difficult

to specify exactly what predispositions subjects have or how they will react to a message with such "unusual" arguments. Thus, a more general hypothesis was postulated concerning the consequent development of attitudes toward the source: if a person is attacked by a message, he will regard the source of the message negatively; if a person is supported, he will evaluate positively; if a person is strongly supported, he will evaluate a message source very positively. Because of the possible occurrence of this variety of responses, it seemed more reasonable to predict that a high intensity message would lead to more polarized changes, regardless of direction, than would a low intensity message.

Hypothesis 3: A high intensity message will lead to more polarized evaluations of message characteristics than will a low intensity message.

Razinsky (1967) found that as the number of spelling punctuation and grammatical errors increased, the evaluation of other message characteristics such as logic, quality, and style also decreased.

The particular message characteristics of interest in this experiment are perceived logical quality, informational quality, clarity, and opinionated language. Because assertion intensity is not as clearly linked to a positive or negative evaluation as are errors, it seemed reasonable to predict only more polarized responses to these variables. A high intensity message will make a greater impression on subjects and thus lead to more intense evaluations; however, these evaluations could as easily be in one direction as another.

CHAPTER II

METHOD

Overview

This experiment used an after-only design with subjects randomly assigned to treatments. Each subject was given a booklet containing an introduction, a persuasive message, and two pages of scales tapping perceptions of the message source and message characteristics. The message, a persuasive attack on the merits of toothbrushing was identified as a recent article from a major metropolitan daily newspaper. One control group of subjects received a message about flying saucers instead of the experimental message. Their responses were used to determine pretest attitudes toward toothbrushing. After reading their particular message, subjects were handed a second booklet in which they indicated their attitudes toward a variety of topics, including toothbrushing. After completing this task, the experiment was explained.

Independent Variable

Message intensity was manipulated by substituting verbs, adverbs, and adjectives into the basic message. The verbs and adverbs were selected on the basis of earlier evaluations by judges (Osgood, Saporta, and Nunnally, 1956). Only adjectives that implied different intensities such as "most" and "some" were used. Specifically, for the high intensity

message, 12 assertions which implied possible or hypothetical relations such as "constant gum irritation can result in infection" were changed to unqualified present tense: "Constant gum irritation results in infection." In addition, the adverbs "absolutely, definitely, and positively," were individually added to three different assertions. In the low intensity message, the qualifiers "may" and "might" were added to twelve assertions and the adverbs "slightly, occasionally, and somewhat" inserted in eight different assertions. For example, here are excerpts from the high and low intensity messages:

High Intensity	Low Intensity
"...too frequent brushing causes gum infections and even mouth cancer, and increases rather than diminishes the amount of tooth decay."	"...too frequent brushing may occasionally cause gum infections and even mouth cancer, and may slightly increase rather than diminish the amount of tooth decay."

A total of 30 words were deleted from the basic message to produce the high intensity message. Twenty-four high intensity alterations were made. In the low intensity message, twenty-six words were deleted; thirty-eight words were added. In most cases the basic message was altered at the same position for both the high and low intensity messages. The complete messages are in Appendix A.

Perception of Message Intensity

Subjects' perceptions of message intensity were tapped with a single item that had been previously shown to differentiate between high and low intensity messages. (McEwen, 1967). This item asked "How strongly

would you say that the author of this article felt about excessive tooth-brushing?" Subjects rated intensity on a seven-point scale that ranged from "very strongly opposed" to "very strongly in favor."

Dependent Variables

Three dependent variables were examined in this study.

(1) Subjects' attitudes toward toothbrughing were measured with four 15-point agree-disagree statements. The four toothbrushing items were included among eight other opinion statements relating to health practices and unidentified flying objects. A score of 15 indicated maximum disagreement with the opinion statement (all positively stated). Summing across the four scales then, a maximum score of 60 indicated complete agreement with the position advocated by the experimental message, and a score of 4 indicated maximum disagreement.

The four attitude statements were (as numbered in the test booklet):

1. Everyone should brush his teeth after every meal if at all possible.

4. There are almost no disadvantages to regular and frequent tooth-brushing.

7. Frequent toothbrushing is a very healthy practice.

10. The best way to prevent tooth decay is to brush one's teeth frequently.

(2) Perceived credibility of source as a function of message intensity was separated into three dimensions, each represented by two seven-point rating scales. The source's safety dimension was measured on scales of trustworthy-untrustworthy and fair-unfair; the competence dimension on

scales of competent-incompetent and experienced-inexperienced; the dynamism dimension on scales of active-passive and timid-bold.

(3) Generalization between message intensity and four message characteristics was measured with the following items (as numbered in the test booklet):

3. In general, how would you rate the quality of information in this article? (four response categories: very good to very bad)

4. How would you rate the logic of the arguments presented? (four response categories: very good to very bad)

5. How would you rate the clearness of writing in this article? (four response categories: very clear to very vague)

6. In general, how opinionated was the language used in this article? (four response categories: very opinionated to not opinionated at all)

Message

The basic message used in this study was developed by McGuire (1961) for his studies on resistance to attitude change. This message, a 500-word attack on the merits of toothbrushing was chosen for two reasons. First, previous research (McGuire, 1961) showed that most subjects had highly positive attitudes toward toothbrushing. Under the assumption of similar prior attitudes, there was no necessity for a pre-test and the possible sensitization it entailed. Thus, the experimental design was simplified by use of this topic. Second, assuming that subjects are seldom aware of arguments against toothbrushing, it followed that they would not be prepared to defend their beliefs. Under these conditions, Hovland's (1959)

generalizations seem to be the most applicable: the more discrepant an argument, the more likely it is to produce the advocated amount of change. If the experimental rationale was correct, the high intensity (most discrepant) message would produce the greatest changes.

A message attacking a cultural truism is somewhat limited in generalizability because such attacks occur so seldomly. However, the simplification of the experimental design made possible by use of this topic, as well as the advantage it gave the independent variable, outweighed its disadvantages.

Subjects

Four different groups of subjects were used in this experiment. Two of the groups were undergraduate classes in Business writing at Michigan State University. One class contained 20 subjects and the other had 37. The other two groups were undergraduate speech classes. There were eight subjects in one group and 10 in the other. Altogether 75 subjects participated in this experiment. After coding, four questionnaires had to be rejected. All these questionnaires contained two or more blank response categories and two of them contained written messages indicating that the subjects had deliberately tried to mislead the experimenter. After discarding these questionnaires, there were 29 subjects in the high intensity condition, 26 in the low intensity condition and 16 in the control group.

Design

An after-only design was used with a different message group serving

as a control to examine the persuasive effect of the toothbrushing message. Since the differential effects of intensity were of interest, and previous studies (McGuire, 1961) indicated relatively similar attitudes toward toothbrushing, subjects were not pretested. It was assumed that individual differences among subjects, including initial attitude toward toothbrushing and familiarity with the arguments presented would be controlled through random assignment of subjects to treatments. Examination of the control group's attitude scores tended to support this assumption.

Procedure

The author was introduced in each class as a graduate student from the Department of Communication. On the cover of each booklet, the study was identified as "...part of a project to examine and hopefully improve upon various aspects of newspaper and magazine articles that report new developments and discoveries in the fields of science and medicine." Subsequent discussion with the subjects indicated that this guise was only partially successful. Some of the subjects did not believe that the article in the booklet had actually appeared in a newspaper.

The experimenter distributed to each class member a booklet containing either a high intensity, low intensity or control message. Distribution was random in each class.

To insure that the subjects would read the message thoroughly, the cover sheet instructed them to read the message carefully and underline each main point. The cover sheet was immediately followed by the experimental message, the message intensity item, six source credibility

scales, and four message evaluation items. When subjects had completed this section, they were told a second booklet would be distributed and were asked not to refer back to the first section.

Part II consisted of 12 opinion statements (including four tooth-brushing items). After the subjects completed this section, the test booklets were collected and the true purpose of the experiment was explained.

CHAPTER III

RESULTS

The experimental results have been divided into four sections. The first section reports measurements of perceived message intensity. The second section reports differences in toothbrushing attitudes among the two experimental groups and the control group. The third section reports mean deviations (or polarization) of source evaluations as well as absolute ratings. The fourth section reports message evaluations.

Ratings of Message Intensity

The manipulation of message intensity was successful. Subjects in the two experimental conditions differed significantly in their ratings of how strongly the source felt about the message topic. These results are represented by the mean perceived intensity ratings in Table 1. A lower absolute value indicates greater perceived message intensity. A t-test for uncorrelated means resulted in a significant difference between the two groups ($P < .01$, two-tailed). Thus, the high intensity message was rated as significantly more intense than the low intensity message.

Attitudes Toward the Topic

A comparison of the experimental groups with the control group indicated that the experimental messages led to more negative attitudes toward the topic of toothbrushing. The two experimental messages, however,

did not lead to different amounts of attitude change as predicted by

Table 1. Ratings of Message Intensity

Treatments	
High Intensity Message (n=29)	Low Intensity Message (n=26)
$\bar{X}$ = 1.72	$\bar{X}$ = 2.73
σ = .94	σ = 1.75

t = 2.67*

*p < .01

the experimental hypothesis. These results are reported in Table 2. Each value was obtained by first summing across each subject's scores on four different attitude scales and then averaging the composite scores to find the group means. It was possible to have attitude scores ranging from 4 (maximally in favor of toothbrushing) to 60 (maximally opposed to toothbrushing). In actuality, scores for the control group, who did not receive an experimental message, ranged from 4 to 60. In the low intensity experimental condition, scores ranged from 8 to 53, and in the high intensity condition they ranged from 6 to 55.

Table 2. Attitudes Toward Toothbrushing

Mean Attitudes Toward Topic

Treatments		
High Intensity Message (n = 29)	Low Intensity Message (n = 26)	Control (No Message) (n = 16)
$\bar{X}_a$ = 29.72	$\bar{X}_b$ = 28.81	$\bar{X}_c$ = 17.19
σ = 11.99	σ = 11.96	σ = 13.58
tab = .292*	tac = 3.09**	tbc = 2.81**

Significance Test

Source of variance	Sums of Squares	df	Means of Squares	F Values
Between Columns	1,826	2	913	5.84**
Within	10,613	68	156.1	
Total	12,439	70		

critical F (P = .05) is 3.15

*N.S.
**p < .01

A single classification analysis of variance revealed that the three groups were significantly different.* T-tests for uncorrelated means showed that each experimental group was significantly different from the control group.* The difference between the means of the high and low intensity groups was in the predicted direction, that is, the high intensity group had more negative attitudes than the low intensity groups, but it did not achieve statistical significance. Thus the experimental messages led to significantly less favorable attitudes toward toothbrushing, but did not have differential effects as predicted by the experimental hypothesis.

Source Evaluation

Comparisons of the subjects' source evaluations failed to reveal any significant differences between the two experimental conditions. Two comparisons were made. First, to test the hypothesis that a high intensity message would lead to more polarized responses than a low intensity message, all responses were scored as absolute deviations from neutrality. The deviations (range: 0-3) were averaged across each pair of scales representing a credibility dimension. Each subject had three scores representing the average deviation of his competence, safety, and dynamism ratings. Group means were computed from these scores and compared using t-tests for uncorrelated means, as reported in Table 3. Secondly, ratings were also scored on an absolute scale ranging from one

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*$p < .01$

Table 3. Mean Deviations of Source Evaluations

a) Competence (Scales: Competent - incompetent; experienced - inexperienced)

Treatments		
High Intensity Message (n=29)	Low Intensity Message (n=26)	
$\bar{X}$ = 1.19	$\bar{X}$ = 1.17	
σ = .662	σ = .634	t = .114*

b) Safety (Scales: Trustworthy - untrustworthy; fair - unfair)

Treatments		
High Intensity Message (n=29)	Low Intensity Message (n=26)	
$\bar{X}$ = 1.00	$\bar{X}$ = 1.10	
σ = .541	σ = .486	t = .725*

c) Dynamism (Scales: Active - passive; timid - bold)

Treatments		
High Intensity Message (n=29)	Low Intensity Message (n=26)	
$\bar{X}$ = 1.41	$\bar{X}$ = 1.33	
σ = .617	σ = .784	t = .417*

*N.S.

(most positive) to seven (least positive). These results, also averaged for each dimension of source credibility, are in Table 4.

There were no significant differences between mean deviations of source evaluations for any dimension of source credibility. Similarly, none of the differences in the absolute scores reached significance. In the case of the dynamism dimension, subjects in the high intensity condition rated the source as more dynamic than those subjects in the low intensity condition but the t-test did not reach a conventional level of significance ($P < .20$, two-tailed). Thus, source credibility evaluations by the two experimental groups did not differ significantly, either in terms of mean deviations from neutrality or in absolute scores.

Message Evaluations

Comparisons of message evaluations failed to reveal any significant differences between the experimental conditions. Again, two separate comparisons were made. To test the experimental hypothesis that the high intensity message would lead to more polarized responses than the low intensity message, each message evaluation item was scored in terms of deviation from neutrality. There were four response categories for each item; the extreme categories were assigned a weight of two, and the remaining categories a weight of one. These results are summarized by item in Table 5. To evaluate the direction of the responses, items were scored from one to four. In terms of informational quality, logic and clarity, a low score indicated a more favorable evaluation of the message

Table 4. Source Evaluations - Absolute Scores

a) Competence (Scales: Competent - incompetent; experienced - inexperienced)

Treatments	
High Intensity message (n=29)	Low Intensity message (n=26)
$\bar{X}$ = 4.02	$\bar{X}$ = 3.67
σ = 1.12	σ = 1.12

t = 1.16*

b) Safety (Scales: trustworthy - untrustworthy; fair-unfair)

Treatments	
High Intensity message (n=29)	Low Intensity message (n=26)
$\bar{X}$ = 4.28	$\bar{X}$ = 3.98
σ = 1.01	σ = 1.24

t = .864*

c) Dynamism (Scales: active - passive; timid - bold)

Treatments	
High Intensity message (n=29)	Low Intensity message (n=26)
$\bar{X}$ = 2.76	$\bar{X}$ = 3.23
σ = .987	σ = 1.20

t = 1.59**

*N.S.
**p .2

Table 5. Mean Deviations of Message Evaluations

3. INFORMATIONAL QUALITY

TREATMENTS	
High Intensity Message (n=29)	Low Intensity Message (n=26)
$\bar{X}$ = 1.10	$\bar{X}$ = 1.08
	t = 0.260
σ = 0.304	σ = 0.266

4. LOGIC

TREATMENTS	
High Intensity Message (n=29)	Low Intensity Message (n=26)
$\bar{X}$ = 1.14	$\bar{X}$ = 1.15
	t = 0.105
σ = 0.344	σ = 0.360

5. CLARITY

TREATMENTS	
High Intensity Message (n=29)	Low Intensity Message (n=26)
$\bar{X}$ = 1.34	$\bar{X}$ = 1.23
	t = 0.909
σ = 0.475	σ = 0.422

6. OPINIONATED LANGUAGE

TREATMENTS	
High Intensity Message (n=29)	Low Intensity Message (n=26)
$\bar{X}$ = 1.38	$\bar{X}$ = 1.35
	t = 0.231
σ = 0.485	σ = 0.475

than did a high score. For the last item concerning opinionated language, a low score indicated that the subjects thought the language was more opinionated. These results are summarized in Table 6.

T-tests for uncorrelated means failed to reach significance for any of the message evaluation variables. There was a slight difference between the two groups on absolute evaluations of clarity ($p < .20$, two-tailed). Thus, message evaluations from high and low intensity experimental conditions were not significantly different either in terms of polarization or absolute scores.

Table 6. Message Evaluations - Absolute Scores

3. Informational quality

Treatments	
High intensity message (n=29)	Low intensity message (n=26)
$\bar{X}$ = 2.45	$\bar{X}$ = 2.31
	t = .824
σ = .674	σ = .601

4. Logic

Treatments	
High intensity message (n=29)	Low intensity message (n=26)
$\bar{X}$ = 2.07	$\bar{X}$ = 2.23
	t = .920
σ = .583	σ = .697

5. Clarity

Treatments	
High intensity message (n=29)	Low intensity message (n=26)
$\bar{X}$ = 1.76	$\bar{X}$ = 2.00
	t = 1.36*
σ = .624	σ = .679

6. Opinionated Language

Treatments	
High intensity message (n=29)	Low intensity message (n=26)
$\bar{X}$ = 1.76	$\bar{X}$ = 1.89
	t = .622
σ = .677	σ = .751

* $p < .2$

CHAPTER IV

DISCUSSION

Summary

This study investigated the effects of variations in message intensity on receiver attitudes toward the message, the topic, and the source of a persuasive message. Message intensity was conceptually defined as the degree to which the assertions in a message deviated from neutrality. It was operationalized by the substitution of previously rated high and low intensity verbs, adverbs, and adjectives into a basic message. Effects of the independent variable were measured on scales which tapped: 1) Attitude change; 2) perceptions of the source along safety, competence, and dynamism dimensions; 3) perceptions of four message attributes: logic, informational quality, clarity, and language opinionation.

Conclusions

Hypothesis 1: While the message was shown to be persuasive, there was no significant difference between the high and low intensity versions. Thus, Hypothesis 1, which predicted that the high intensity message would lead to more attitude change than the low intensity message, was not supported.

Hypothesis 2: There were no significant differences in source evaluations between treatment groups. Thus, Hypothesis 2, which predicted that the high intensity message would lead to more polarized evaluations of the message source, was not supported. There was some evidence that

the dimension of dynamism was more responsive to the intensity manipulations than were the safety and competence dimensions. The difference between the two groups, however, did not reach conventional levels of significance ($p < .2$).

Hypothesis 3: Judgments of logical quality, informational quality, clarity, and opinionated language were not significantly different between treatment groups. Thus, Hypothesis 3, which predicted that a high intensity message would lead to more polarized evaluations of message characteristics, was not supported. There was a slight difference between the two groups on absolute judgments of clarity, but this difference did not reach conventional levels of significance ($p < .2$).

Discussion

There are a number of possible reasons why the experimental hypotheses were not confirmed. The first, and simplest reason, would be that the intensity manipulation was not effective. Evidence for this explanation is somewhat contradictory. The comparison between treatment groups on the measure tapping perceived intensity was highly significant; however, both means were on the high intensity side of the scale. Discussion with the subjects after the experiment indicated that those in the high intensity condition felt their message was rather "extreme, while subjects in the low intensity group felt their message was "weak" because it did not draw what they referred to as "definite conclusions." On the other hand, 14 out of 26 subjects in the low intensity condition perceived the source as being "very strongly opposed", or "quite opposed" to toothbrushing. Thus, there remains the possibility that the experimental

manipulations alone were not adequate enough to produce different perceptions of intensity.

Some evidence, in the form of produce moment correlations indicated that the relationship between intensity and the dependent variables may not be a direct one. While the correlation between intensity judgments and attitude scores was not significant, two of the three source evaluation dimensions were related to perceived intensity rather than manipulated intensity.

(1) Neither deviation or absolute scores on the competence dimension were significantly correlated with perceived intensity for the high or low intensity conditions.

(2) Absolute safety evaluations were significantly correlated with intensity judgments (High I. $r = -.338$, $t = 1.76$*, Low I. $r = -.341$, $t = 1.78$*). Safety deviation scores were not significantly correlated (High I. $r = 1.01$; Low I. $r = .015$).

(3) Absolute dynamism scores were significantly correlated with intensity judgments (High I. $r = .394$, $t = 2.23$**; Low I. $r = 3.62$, $t = 1.90$*), but correlations with deviation scores also failed to reach significance (High I. $r = -.07$; Low I. $r = -.203$)

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* $P < .05$, critical $t_{.05} = 1.71$ (one tailed)
** $P < .01$, critical $t_{.01} = 2.05$ (one tailed)

Correlations were also calculated between intensity judgments and evaluations of the various message characteristics. Only the correlations between intensity and opinionated language proved to be significant. Absolute opinionated language scores were significant for both the high and low intensity messages (High I. $r = .329$, $t = 1.71$*, Low I. $r = .328$, $t = 1.70$*). For the deviation scores, only the high intensity condition showed a significant correlation (High I. $r = -.374$, $t = 1.98$; low I. $r = -.258$, $t = 1.10$).

Failure to find a correlation between intensity judgments and attitude scores could indicate that the intensity manipulation was not strong enough. There is more reason to believe, however, that lack of a relationship resulted from the use of an unusual topic.

Razinsky (1967) also drew this conclusion after failing to find any between-group variations in attitudes induced by spelling, punctuation and grammatical errors in a message attacking toothbrushing (the same as used in this experiment). He commented that the message itself may have been entirely too effective: "...the cultural truism's high susceptibility to change allows any reasonable attack to be successful. The inherent susceptibility might interact with the potential persuasiveness of the attack, leading to rather large changes in attitudes. The effect of the...(independent variable)...would easily be cancelled by the strong persuasive potential of the situation." (p. 29) Razinsky's reasoning

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*$P \leq .05$, critical $t_{.05} = 1.71$ (one tailed)
**$P < .01$, critical $t_{.01} = 2.05$ (one tailed)

contradicts the rationale for using a toothbrushing attack in this experiment. Originally, it was reasoned that toothbrughing attitudes would be most differentially affected by high and low intensity attacks. Now, because the difference between groups actually failed to reach significance, Razinsky's argument must be given more weight.

Linking an unusual topic to a moderately credible source may also have interfered with the effect of the intensity manipulation. As indicated previously, the ploy used to disguise the real nature of the experiment may not have been effective. Some subjects commented that they did not believe the message really appeared in a major metropolitan daily newspaper. This reaction to the source induction may have resulted in confounding influences and raised the variance of the attitude scores. That is, some subjects may have been responding as if the attack were a "real" message; some may have tried to remain unaffected and responded as if they had never read the message; and still others may have resented the attempt to influence their opinions and reacted by indicating extreme favorability toward the topic.

Before they can be accepted, these conjectures require somewhat more substantial evidence than the large attitude score variance found in this experiment. However, there remains a strong possibility that reaction to the unusual topic may have been a confounding variable in the perceived intensity-attitude relationship.

Significant correlations between perceived intensity and source evaluations would seem to indicate that subjects in both experimental

conditions who felt the message was more intense also thought the message source was less safe, but more dynamic. Somewhat similar results were found by Razinsky (1967).

Razinsky showed that judgments of source credibility did not vary with increasing numbers of errors in grammar, spelling and punctuation, unless attention to the errors was emphasized. Directed attention to errors elicited greater differences across treatment groups, especially when responses were analyzed according to the number of errors identified by the subjects. It may be that the same is true of assertion intensity manipulations. For some subjects, the assertions were not sufficiently strong enough alone to act as indexing cues for evaluation of the source. Still, some subjects apparently did find the message intense and evaluated the source accordingly, at least on the safety and dynamism dimensions. These variations could be a result of the intensity manipulations themselves, but it is also possible that the differences between the subjects who did perceive the intensity manipulation and those who did not may be a function of an intervening personality variable. The implications of this reasoning will be discussed later in this chapter.

Of the four message characteristics examined in this study, only opinionated language was significantly related to judged intensity. Here, those subjects who found the message intense also felt the language was more opinionated. Apparently subjects had other criteria besides assertion intensity for judging logic, clarity, and informational quality.

Failure to find many significant relationships may have resulted from the particular choice of items used to tap message perceptions.

There was no apriori rationale for the choice of items and it is quite probable that there are other dimensions of message evaluations which would have been more affected by variations in message intensity. The implications of this reasoning will be discussed in the next section.

Implications and Research Extensions

Although none of the experimental hypotheses were supported, there is some reason to believe that the effects of the intensity manipulations were confounded by extraneous variables. Therefore, rather than discard the notion of message intensity, further research should be designed to clarify the relationships between intensity, attitude, source evaluations, and perceived message evaluations. A number of research extensions can be suggested.

This experiment used only one rather unusual topic. To increase generalizability, several different topics should be chosen. A wider range of topics would permit comparisons to be made with the results of prior experiments by Bowers (1963) and McEwen (1967) and would provide useful information for professional communicators. A wider range of intensity variations would also increase generalizability. This experiment used only one message from each of the more extreme ends of the intensity continuum. A large number of messages varying from high to medium to low intensity could be created by varying the number of insertions and deletions of high and low intensity words. In this manner, the effects of intensity on attitudes, source evaluations, and message evaluations could be examined to determine if they were continuous and linear.

As another research extension, subjects could be cued to variations in intensity. If they were told that the messages they were about to read were written by people who either felt strongly or weakly about their topic, they would be able to concentrate on intensity cues. By comparing the responses of subjects responding under these conditions to subjects who had not been cued, it would be possible to determine if intensity manipulations alone were strong enough to induce changes. As in the case of Razinsky's (1967) message errors, it might be that subjects require extra cues before they can perceive and respond to message intensity manipulations.

Up to this point, an attempt has been made to predict subject's behavior solely in terms of reactions to variations in message intensity. In the future, an alternative approach might be to predict reactions to variations in message intensity according to individual differences in the personalities of the message receivers. For example, it may be that certain subjects are more responsive to variations in intensity than are other subjects. As a personality trait, this would be similar to what Baron (1965) called "differentiation". People who are "differentiators" as compared to others whom Baron calls "assimilators" are better able to discriminate and remember separate details. "Assimilators", on the other hand, tend to ignore details or lump them all together. Here, assimilation-differentiation could be postulated as an intervening variable. Persons classified as differentiators would be more aware of intensity manipulations and respond accordingly. Conversely, assimilators would be expected to ignore most variations in intensity. If assimulation-differentiation is

related to perception of variations in intensity, as an intervening variable it would reduce within-variance and allow the effects of intensity to be defined more clearly.

Another variable that seems relevant to message intensity is Sherif, Sherif and Nebergall's (1966) notion of assimilation-contrast. Briefly, contrast can be defined in the following manner: when a subject evaluates a position advocated by a communication, the greater the distance between the subject's own stand and the position advocated, the greater will be the subject's displacement of that position away from his own. Assimilation can be defined as: when there is only a small discrepancy between the subject's position and the position advocated by the communication, the subject will displace the communication toward his own stand. In other words, when a subject contrasts, he judges the communication as more distant from his own stand than it objectively is; the converse is true for assimilation. In contrast to Baron's assimilation-differentiation, which is topic free, the Sherif, Sherif and Nebergall notion of assimilation and contrast only applies to topics which are ego-involving for the receiver.

In terms of intensity, if a person is ego involved with, and highly in favor of the position advocated by a communication, a high intensity message will be closer to his position and will have a greater chance of being assimilated. A low intensity message would be judged as somewhat farther away by an extremely favorable person, and may be contrasted. For the person who is extremely unfavorable toward the position advocated by the message, the high intensity messsge would be most discrepant and

would be contrasted, whereas the low intensity message would not be as discrepant and would stand a greater chance of being assimilated. Thus, having pre-test measures of subject's attitudes toward the topic would allow detailed predictions to be made of a subject's responses to variations in intensity.

The final research extensions suggested by this experiment are of a more general nature and not directly related to message intensity. There seems to be some need for a better conceptualization of those characteristics of a written message which audiences use to evaluate the source of a message. Miller and Hewgill (1964) have already shown that non-fluence in spoken communications will cause adverse ratings of some dimensions of speaker credibility. Eagly and Manis (1966) demonstrated that the topic of a written message led to different evaluations of the source, depending on the subjects' attitudes toward the topic. These manipulations, however, are rather obvious and can be easily perceived by audiences. In the case of spoken messages, subjects may be able to make much more subtle evaluations of a speaker because they constantly make such distinctions in everyday life. The personal characteristics of the sources of written messages, however, are seldom given along with their messages and people have less practice associating stylistic cues with personality traits. For this reason, variations in written messages have not been too successful to date in inducing variations in source evaluations.

For example, Razinsky (1967) found that errors in a message did not affect evaluations of the source unless attention was directed to errors. Even then, only evaluations of the sources' competence and

safety were affected. McEwen (1967) did not find any difference in source evaluations when he manipulated assertion intensity. Similarly, Bowers (1963) reported failure to find any variations in source evaluations resulting from his intensity manipulation. These results are all supported by Osgood and Tannenbaum's (1955) general finding that it is more difficult to change evaluations of a source than it is to change evaluations of a topic.

On the basis of this evidence, it would seem desirable to devise a series of experiments to discover what message characteristics subjects can recognize, and which of these characteristics make a difference in source evaluations. One method would be to ask subjects to evaluate a message with a series of open ended questions. For example, one might ask: "What did this message tell you about the person who wrote it?" Responses could then be content analyzed to find what kinds of destinctions were made. After analyzing the distinctions, operational methods could be developed for emphasizing the linguistic differences subjects noticed. For example, a particular element could be simply repeated at different points in the message; or, specifically defined variations in a single element could be inserted throughout the message. Different messages generated using this procedure could then be tested under relatively realistic communication situations. Until such procedures are utilized, studies of the effects of stylistic manipulations will have to continue searching for meaningful independent and dependent variables in a rather unsystematic manner.

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APPENDIX C

CONTROL BOOKLET

College of Communication Arts
Michigan State University
August, 1967

Science and Health News Study

This study is part of a project to examine and hopefully improve upon various aspects of newspaper and magazine articles that report new developments and discoveries in the fields of science and medicine.

In this class, and other University classes, we are asking students to read and evaluate a series of articles originally published in a major metropolitan daily newspaper. Your reaction to these articles will help us find out how effectively or ineffectively each particular science or medical writer was able to convey his ideas. The article in this booklet has been reproduced exactly as it was published.

Specifically, we would like you to read the attached article very carefully. As you read the article, please underline the main points made by the author. Underline as many words, clauses, or sentences as you think represent each main point. At the end of the article are a few items which will enable you to tell us what you think of the article.

We very much appreciate your helping us in this study.

John Kochevar
Project Director

Read this message carefully and underline all main points

Some Dangers of Excessive Tooth Brushing

By Richard Thorpe

Many people brush their teeth more or less automatically after each meal without realizing that of late, medical reports may be calling this procedure into question. Recent medical and biological studies indicate the beneficial effects of constant tooth brushing probably have been exaggerated. Furthermore, it has been partially demonstrated that a number of bad effects may result from brushing teeth often. Constant gum irritation occasionally can result in infection and even mouth cancer. Also, brushing teeth so frequently tends to push back the gums and expose the non-enameled parts of the teeth to decay. Hence, medical authorities are beginning to urge that instead of brushing our teeth so frequently, we take other measures to improve dental health, such as a better diet. Let us review some of this recent evidence demonstrating that constant tooth brushing may not do any great amount of good and might do some harm.

The most undesirable effect of tooth brushing is the damage it occasionally causes to the gums. All of us may have noticed that when we brush our teeth, we sometimes cause our gums to bleed. Such bleeding, obviously, may indicate some degree of gum injury. These injuries, besides the physical damage they cause, somewhat increase the likelihood of infection. Some doctors generally believe that many serious gum infections may result from accidental injury to the gums inflicted during tooth brushing. Furthermore, repeated injuries of the gums caused by constant tooth brushing might, even when each of these injuries is only slight, produce mouth cancer. Also, frequent brushing may actually increase rather than decrease the amount of tooth decay by exposing the unprotected areas of the teeth to the decay-causing bacteria. Nature has given our teeth a very good protection: the enamel sheath. This sheath covers only the exposed portions of the teeth: there is almost no enamel under the portions

In 1963 in Illinois, a UFO followed a car carrying two passengers as it twisted and turned along a country road. The UFO flew behind the car for a while, then zipped in front of it and zoomed over the car at great speed. Air Force officials called the object the planet Jupiter. They did not explain how the planet could make 90 degree turns and pass a moving car from the opposite direction.

Many other events like these could be described. All of them increase the likelihood that some intelligent being is controlling the craft.

Next, consider this evidence. In 1957, a Brazilian fisherman watched a UFO dive toward the ocean, then race straight up for a few seconds until it exploded with a blinding flash. Pieces of the object washed ashore near him. The fisherman took these pieces to scientists and told them his story. The scientists concluded that the object could not have been a meteor because meteors do not travel straight up. The men had the fragments chemically examined. The pieces were pure magnesium. Pure magnesium is not found on earth nor can it be manufactured by known processes. Obviously, the metal had to come from some place other than earth. The Air Force has made no comment on this evidence even though it has been given pieces of the metal for analysis.

Flying saucers cannot be mass hallucinations. They have been seen by radar and by the human eye at the same time--radar cannot detect an hallucination . They cannot be weather balloons or planets or meteors. These objects do not maneuver as UFO's have been seen to maneuver. All the evidence points to the fact that UFO's are real objects controlled by some intelligent beings from a world with a technology perhaps more advanced than our own. To continue to insist that UFO's do not exist or are just "natural phenomena" is not a rational conclusion.

GO TO NEXT PAGE

PART I

Now that you have read the article, and underlined the main points, we are interested in what you thought of the article and the person who wrote it.

1. How strongly would you say that the author of this article felt about the topic he was discussing. (CIRCLE one)

VERY STRONGLY OPPOSED	QUITE OPPOSED	SLIGHTLY OPPOSED	NEUTRAL	SLIGHTLY IN FAVOR	QUITE IN FAVOR	VERY STRONGLY IN FAVOR

2. Now, we would like to know what you think of the author of this article.

   a. How competent or incompetent do you think he is?
   Competent ___ ___ ___ ___ ___ ___ ___ Incompetent
   very very

   b. How trustworthy or untrustworthy do you think he is?
   Untrustworthy ___ ___ ___ ___ ___ ___ ___ Trustworthy
   very very

   c. How active or passive do you think he is?
   Active ___ ___ ___ ___ ___ ___ ___ Passive
   very very

   d. How experienced or inexperienced do you think he is?
   Inexperienced ___ ___ ___ ___ ___ ___ ___ Experienced
   very very

   e. How fair or unfair do you think he is?
   Unfair ___ ___ ___ ___ ___ ___ ___ Fair
   very very

   f. How bold or timid do you think he is?
   Timid ___ ___ ___ ___ ___ ___ ___ Bold
   very very

3. In general, how would you rate the quality of the information in this article

   _____ very good
   _____ good
   _____ bad
   _____ very bad

4. How would you rate the logic of the arguments presented?

   _____ very good
   _____ good
   _____ bad
   _____ very bad

5. How would you rate the clearness of writing in this article?

_____ very clear
_____ clear
_____ vague
_____ very vague

6. In general, how opinionated was the language used in this article?

_____ very opinionated
_____ opinionated
_____ not very opinionated
_____ not opinionated at all

APPENDIX D

ATTITUDE MEASURES

PART II

Editors and reporters are very concerned over the possibility that their news articles may be affected by their own opinions. They also would like to know if the opinions of their readers have any effect on reader interest or understanding. To determine this, we would like you to indicate your own personal opinions toward the topic of the article you just read. In this section, please indicate your own opinions, at this time, toward each item.

Each statement below will be accompanied by a scale. You are asked to indicate the extent of your agreement or disagreement with the statement. You may find yourself agreeing strongly with some of the statements, and disagreeing just as strongly with others. Some of the statements deal directly with the subject matter of the article you just read. Others deal with articles being used in other parts of this study.

> Each statement is accompanied by a scale. You are asked to indicate on this scale the extent of your agreement with the statement. The following is an example:

At the present time in the U.S., life expectancy is greater for people living in rural areas than for those in urban areas.

Definitely Disagree	Mildly Disagree	Neutral	Mildly Agree	Definitely Agree

Notice that the scale has five categories ("Definitely Disagree," etc.) and that each of these categories has three divisions. You are asked to indicate your agreement with the statement by marking an "X" in whichever of these divisions best shows your opinion. For example, suppose that you agree completely with the above statement, without reservation. In this case, you would put your "X" over in the place to the extreme right, as shown below:

Definitely Disagree	Mildly Disagree	Neutral	Mildly Agree	Definitely Agree X

If you strongly agree with the statement, with some slight reservations, you may want to put the "X" down toward the left end of the "Definitely Agree" category, as follows:

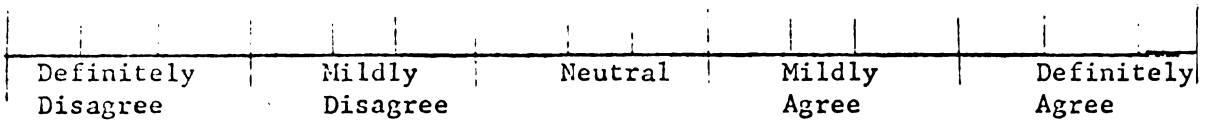
Definitely Disagree	Mildly Disagree	Neutral	Mildly Agree	Definitely Agree
				X

If, on the other hand, you completely disagree with the statement without reservation, you should mark an "X" in the space at the extreme left, as follows:

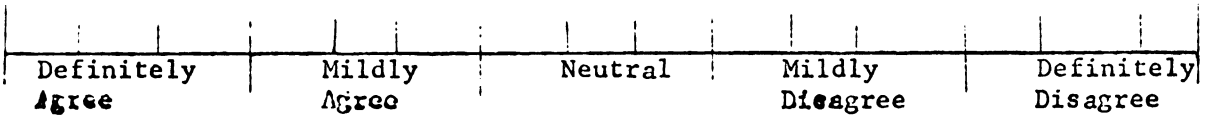
Definitely Disagree	Mildly Disagree	Neutral	Mildly Agree	Definitely Agree
X				

We want your personal opinion on each statement, as you think at this moment.

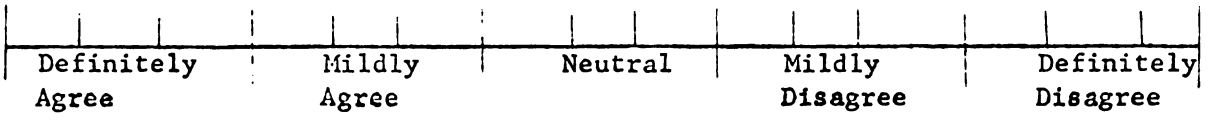
1. Everyone should brush his teeth after every meal if at all possible.



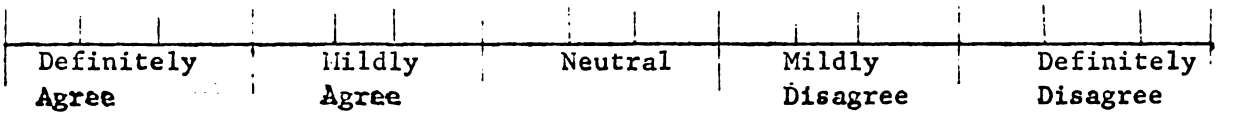
2. Most unidentified flying objects could easily be explained as mass hallucinations or illusions by those who see them.



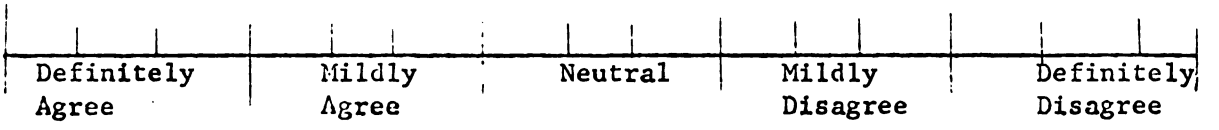
3. Life, as we know it, has probably developed on other planets in the universe, in addition to Earth.



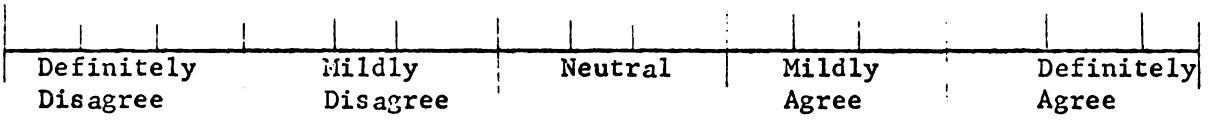
4. There are almost no disadvantages to regular and frequent tooth-brushing.



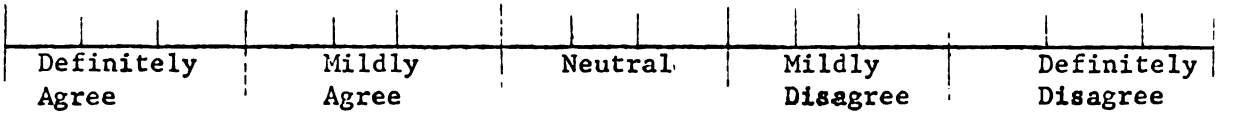
5. Even though one may not have any reason for suspecting TB, it is a good idea to have regular chest X-ray examinations.



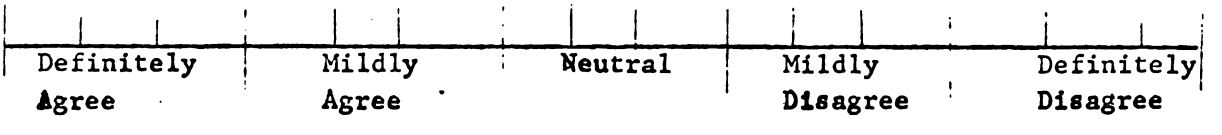
6. One of the greatest single advances in the history of medical science was the discovery of penicillin.



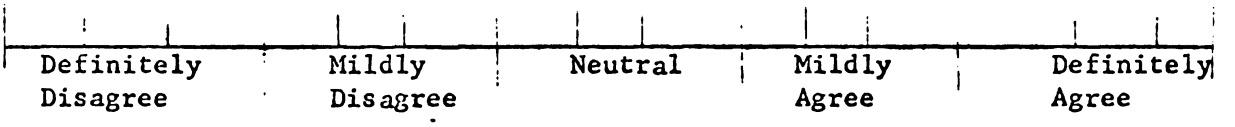
7. Frequent tooth-brushing is a very healthy practice.



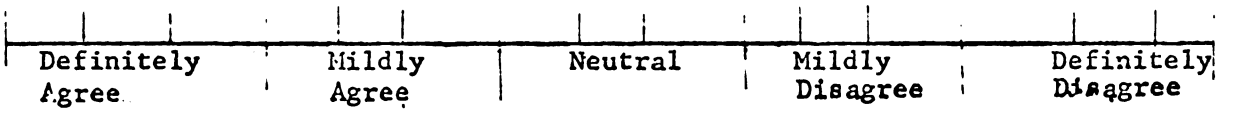
8. The Air Force is withholding information about unidentified flying objects from the public.



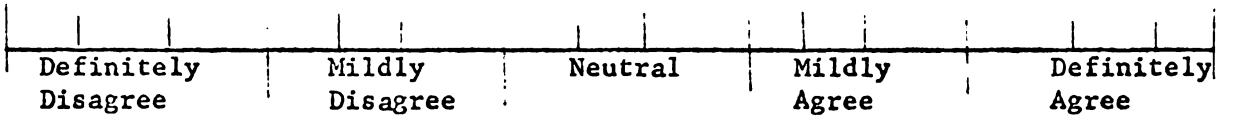
9. All things considered, getting an annual chest X-ray for detecting TB is a very wise practice.



10. The best way to prevent tooth decay is to brush one's teeth frequently.



11. Penicillin may well be considered a "wonder drug", because of the many advantages to its use.



12. Most of the sightings of unidentified flying objects are probably wrong identifications of common objects.