



THE EFFECTS OF MESSAGE DETERIORATION
ON MESSAGE AND SOURCE EVALUATION, ATTITUDE, AND
INFORMATION GAIN

Thesis for the Degree of M. A.

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EDWARD LEE RAZINSKY

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ABSTRACT

THE EFFECTS OF MESSAGE QUALITY DETERIORATION ON MESSAGE AND SOURCE EVALUATION, ATTITUDE, AND INFORMATION GAIN

by Edward Lee Razinsky

The purpose of this study was to investigate the effects of deterioration in message quality on evaluations of the message and its source, on learning, and on persuasion. Message quality was defined as following or violating normative rules of spelling, grammar and punctuation. Message quality deterioration was defined as increasing numbers of violations of the accepted rules. Dependent measures were: 1) Evaluation of Message: logic, information quality, clarity, overall quality, and evaluation based on style; 2) Evaluation of the message source: competence and trustworthiness; 3) Information gain; and, 4) Persuasive impact of the message.

Four hypotheses were tested: As frequency of incorrect uses of the language code increases, (1) other aspects of the message are evaluated less favorably; (2) perceptions of the message source become more derogatory; (3) amount of information learned decreases; and, (4) attitude change decreases.

Message quality was manipulated by systematically introducing increasing numbers of errors into a basic, 500-word message. Four message versions resulted: (1) No-Error version--the original message; (2) Moderate-Error version--with a total of 12 errors: 5 spelling errors,

4 punctuation and 3 grammatical; (3) High-Error version--with a total of 24 errors: 10, 8, and 6 in the previous categories; and, (4) Extreme-Error versions--with a total of 48 errors: 20, 16, and 12.

Two experiments were performed, with 66 subjects in the first and 55 in the second; all Ss were undergraduates at Michigan State University. All subjects were asked to read one version of the experimental message and evaluate the message and its source. A separate test booklet tapped attitude toward the topic and also provided a 10-item information quiz.

In Experiment II, subjects were asked to find and mark errors perceived. These results were reanalyzed: based on the frequency of errors actually perceived, the pool of subjects was divided into quartiles.

Data from Experiment I lent only partial support for the hypotheses. Results of Experiment II and the Reanalysis indicated that message and source evaluation and information gain tend to decrease with increasing perception of errors. There were no differences in attitude toward the topic on the basis of message errors. All four message versions persuaded equally well.

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AND INFORMATION GAIN

By

Edward Lee Razinsky

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It might, but should not, go without saying that the orientation, training and philosophy of the Department of Communication provides impetus for any research undertaken by its students. We will be eternally thankful for exposure to this way of knowing the world.

A statement by a former employer must also be acknowledged here: "You've been studying communications for over a year now. What have you learned that will help me publish better magazines?" While solving practical, magazine-publishing problems is not an overall goal for me, I would hope to reserve some generalizability for his problem also. Or, in other words, I hope he doesn't find my work completely irrelevant to the practical business of mass communications.

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¹Source perceptions scales appear at the end of the attitude statements in the Initial Experiment, and at the end of the message perception items in Experiment II.

CHAPTER I

RATIONALE

Background and Prior Research

Over time and across cultures, language behavior has evolved with systematic structure. (9) An illogical sequence of words or unfamiliar word might be noticed and be found unacceptable even without formal knowledge of rules.

Further, receivers might be expected to make the message producer aware of his linguistic indiscretions, or alter his evaluation of the message and its producer, or both.

For present purposes, all forms of formal and informal, written and unwritten rules imposed on written message production will be considered as defining conditions for "message quality," i.e. an explicit or implicit "This is the right or wrong way to encode messages."

Work has been done to demonstrate that "meaning" for correct structure is acquired even before formal training in the grammar of the native tongue. Roger Brown (4) asked pre-school youngsters (3-5 years old) to identify appropriate pictures with plural or singular nouns or verbs. The children correctly designated, for example, action with the "ing" form of a nonsense word ("The man is Nissing.") They knew that "The man has three Latts" but has "Some Latt."

It may be assumed that some concept of correct usage of the code is acquired in the process of normal language acquisition, with or without

the speaker's knowledge of formal rules. But it is suggested that the effects of deviations from normative rules have not been extensively explored.

One might conceive of a continuum of acceptability which includes deviations ranging from completely acceptable to totally unacceptable--gradually deteriorating message quality. At the more acceptable end, there may be an occasional extra space between words or a 'widow'--a single word as the last line of a paragraph. Toward the middle might be the incorrect but understandable Pennsylvania Dutch form, e.g. "Throw Momma from the train, a kiss," or the sometimes ponderous translations of operating instructions which accompany German cameras.

At more extreme positions on the continuum, there could be misspelled words with just one letter out of place, or words in which the "i" follows the "e" when it should precede; further, reach examples of inappropriate lexical items, misused parts of speech; and finally reach the point where the words so violate acceptable usage that the native speaker would consider them a random sequence.

Relative placement of deviations along the fictional continuum has been speculative. But it does suggest that there are gradations of acceptability and perhaps differential fidelity accompanying successively more deviant forms. At some points, variations may not be perceived; at others, perceived but not influential in the receiver's evaluation of the message or its producers.

Previous research dealing generally with message quality might be divided into that which treats language or codes either within, or apart

from, the context of social interactions. Experiments dealing with structure of language per se, in the realm of the linguist or psycholinguist, have worked with such variables as the recall of content words vs. functional words, psychological evidence for grammatical structure, semantic generalizations, and association strength. (13)

The distinction can be made between this context-free research and that which treats language as a connecting link in a social dyad, i.e. as communication. The present study is in this second category.

Research in this second area has treated message quality in various ways. For example, readability has been manipulated as a function of word and sentence length and number of personal references. (13) Readability has been measured in terms of comprehension (recall) or number of paragraphs read by an audience (10). Sensationalism in written material has been indexed in terms of style of writing and topic of the message. (18) Structure, in terms of organization of arguments, has been manipulated to effect comprehension of controversial news stories; ability to answer questions about content. (5) Redundancy in written material has been measured by Taylor's "Cloze" procedure: the more redundant, the higher the Cloze score and the higher the presumed comprehension of the copy. (19)

But in these areas, it is not clear which message treatment is the norm, or most acceptable version, and which is the deviate, or unacceptable version. Copy with a Flesch Reading Ease score of 20 might be completely unacceptable for a popular digest, but especially acceptable for a scientific journal. A news story judged as sensational might be considered the standard of excellence for a tabloid or the classic example of poor

writing for staff members of the Christian Science Monitor.

In short, the research described seems to treat variations of structures and strategies as much as deviations from correct or acceptable form. They demonstrate dimensions of message quality, but not deviations from general norms of acceptable code usage.

More direct tests of the effects of message deterioration were made recently by Sencer (written messages) and Miller and Hewgill (oral presentations). Sencer (16) introduced increasing numbers of grammatical errors into a 1000-word message and measured subjects' evaluation of the quality of the writing, attitude toward the message, comprehension, and interaction between increasing errors and verbal aptitude.

Sencer found that as number of grammatical errors increased, increasing proportions of subjects indicated that the message was "badly written," attitudes toward the message (attitude toward the topic was not a variable) became less favorable, and subjects with higher verbal aptitude were more cognizant of increasing error frequency. He found no difference in comprehension (as measured by "Cloze" procedure) among message treatments.

Miller and Hewgill (12) manipulated verbal nonfluencies: the "vocalized pause" (or "Uhhh"), and the "repetition" or stammer, where a first syllable was uttered and then repeated before the message continued. They established five conditions for each type of nonfluency: 0, 25, 50, 75, and 100 nonfluencies in the identical 1000-word, seven minute taped speech. With increasing nonfluencies, of each type, the audience made less favorable evaluations of the speaker.

The present study expanded on the previous research: it directly tested message quality deterioration, increased the number of error types and measured attitude change.

The basic question proposed is this: What are the effects of following or violating the implicit or explicit rules of message quality on the effectiveness of a particular message?

Hypotheses

In this study, the variable of message quality was conceptualized in terms of prescribed use of the code, and operationalized as increasing numbers of inaccuracies in these categories: spelling, grammar and punctuation. Effect was measured in terms of four dependent variables: 1) evaluation of the message; 2) evaluation of the source of the message; 3) the persuasive impact of the message; and, 4) the amount of information learned from the message.

Four hypotheses were tested:

Hypothesis 1: As number of errors increases, related components of the message will be evaluated less favorably.

Work with response generalization suggests that the perception of errors will structure responses to related message components, specifically: logic of arguments, clarity of presentation, style of writing, information quality and overall evaluation.

Impression formation research by Asch (1) indicated that the response to certain key words in a personal description, e.g. "hot-cold," generalized to many personality traits of an individual. For example,

the "cold" individual was also perceived as being ungenerous, shrewd, etc.

Greenberg (7) showed that attitude change induced for one concept will generalize to related concepts. And Sencer's (16) experiment with grammatical errors indicated that as number of errors increased, subjects were more likely to evaluate the message generally as "badly written."

Hypothesis 2: As the number of message inaccuracies increases, perceptions of the message source will become less favorable.

Again, the findings in response generalization and impression formation suggest that the perception of errors in the message will alter the receivers' evaluation of the source, specifically on the competence and trustworthiness aspects of credibility.

In a more direct test of this hypothesis, Miller and Hewgill (12) found that as the number of nonfluencies increased, ratings of the source became less favorable. Dynamism ratings decreased as a function of increases in the repetition-type nonfluency only.

As suggested by Osgood and Tannenbaum (14), both attitude toward source and attitude toward message topic are alterable when the two are linked in a communication situation. Thus, linking an unknown source to a poor message should yield less favorable source perceptions.

Hypothesis 3: As message quality deteriorates, the amount of information learned from the message will decrease.

It is suggested that manipulation of language factors in violation of accepted practice is analogous to introducing "noise" into the communication system. Noise interferes with the acquisition of information. Therefore, as noise level increases, information gain decreases. (15)

Hypothesis 4: Attitude change varies inversely with message quality deterioration, such that as number of message errors increases, attitude change will decrease.

This hypothesis can be supported from a number of theoretical positions. The bulk of the research dealing with source credibility indicates that attitude change and credibility are positively related. (8) Since it was hypothesized that ratings of source credibility would become less favorable as message errors increased, it is reasonable to expect that persuasive impact would decrease as source credibility ratings decreased.

The principle of congruity also suggests support for the attitude change hypothesis offered here. (14) The experimental situation can be described this way: A highly valued concept (toothbrushing) is attacked by a source who is less highly valued than the concept (source is a college freshman; receivers are college juniors or seniors). In terms of the congruity model, this is an incongruous situation.

In his application of the congruity model to oral communication, Bettinghaus (3) has suggested that evaluation of the source can occur in stages: an initial evaluation before presentation and an evaluation based on presentation. So while the writer of the message might have been perceived as neutral just after an introduction, he would be rated negatively after being credited with an error-laden message. It would be this second evaluation which would serve as the context for source-assertion-concept cognitions, e.g. S+A-C+ in the No-Error Treatment just prior to readjustment toward congruity.

Based on this inference, it is expected that increasing numbers of message errors will tend to decrease the source's ratings during the course of the message. This prediction is Hypothesis 2: less favorable credibility rating with increasing message quality deterioration.

Given this situation, just after reading the message the receivers might have S-A-C structures similar to those in Table 1. Sources ranging from neutral or slightly positive (in the No-Error treatment) to highly negative (in the Extreme-Error treatment) made negative assertions (constant in all message versions) about a highly positive concept (toothbrushing).

Congruity theory suggests that the subject will attempt to reduce or eliminate his incongruity. With an initially neutral source and a fairly sound argument, the source might be slightly positive after the presentation, and attitude change would be expected. But as the source is, in effect, discredited by increasing message errors, incongruity could be more easily reduced by lowering the evaluation of the source and not changing attitude toward the concept.

Table 1. Possible Evaluations of Source, Assertion and Concept After Reading the Experimental Message

<u>Treatments</u>	<u>Source</u>	<u>Assertion</u>	<u>Concept</u>	<u>Extent of Incongruity</u>	<u>Predicted Attitude Change</u>
No-Error	+	-	+++	Most	Most
Moderate-Error	-	-	+++	Slight	Minimal
High-Error	--	-	+++	Minimal	Slight
Extreme-Error	---	-	+++	Congruous	Little or None

This study provides two tests of these hypotheses--Experiment I, which allowed free perception of errors; and Experiment II, which forced attention to errors in an attempt to test maximum message quality deterioration effects.

CHAPTER II

METHOD

Independent Variables: Message quality was manipulated by four systematic introductions of increasing numbers of errors into the basic message. The error types--spelling, punctuation and grammar--were selected arbitrarily since differential effect of error classes was not under investigation. However, it seemed reasonable that errors in these categories were representative of the class of errors of concern here.

The errors were constructed to appear to have been made naturally. For example, the change of "constant" to "constent"; "undesirable" to "undisirable". Punctuation errors took the form of deletion of necessary marks (period at the end of a sentence) or inclusion of superfluous marks (comma in the middle of a phrase).

Grammatical errors included "...studies indicateses that..."
toothpastes and powders has been found..."

Here is a sample passage from the Extreme-Error message. Punctuation and grammar errors are indicated by parentheses; spelling errors by underlining:

"Many people brush their teeth more or less automatically after each meal without realizing that of late, medical reports have been calling this procedure into question. Recent medical and biological studies (indicates) that the beneficial effects of constent tooth brushing have been (exaggerating). Furthermore(,) it has(,) been demonstrated(,) that a number of bad (effect) can result from brushing teeth so often. Constant gum irritation can result in infection and even mouth cancer."

An attempt was made to have the errors appear as a violation of the message code stemming from ignorance. Simply adding random letters to a word to construct a misspelling might seem unbelievable. Or, the inversion of an "i" and an "e" might be attributed to typographical inability rather than the source's violation of rules for acceptable use of the code.

Overall, sentences were not restructured by the introduction of errors, nor were words deleted; all message treatments were of identical length and wording. No more than one error was introduced for a given word, i.e. no one word was both misspelled and grammatically incorrect. As far as possible, both number and type of error were introduced uniformly throughout the message.

Four message treatments resulted:

- 1) No-Error version--The unaltered message.
- 2) Moderate-Error version--with a total of 12 errors: 5 spelling errors, 4 punctuation and 3 grammatical.
- 3) High-Error version--with a total of 24 errors: 10, 8 and 6 in the previous categories.
- 4) Extreme-Error version--with a total of 48 errors: 20, 16, and 12; approximately one error per 10 words. This was the same error rate used by Sencer (17) in his high error version.

Errors were introduced ordinally, i.e. the "Moderate-Error" message contained a basic set of 12 errors; the "High-Error" version was constructed by adding 12 additional errors to the basic set; the "Extreme-Error" treatment contained the 24 errors from the less error-laden messages, plus 24 new ones.

Dependent Variables: Four dependent variables were examined in this study:

1) Generalization between message quality deterioration and related message aspects. Subjects rated the logic, amount and quality of information, and clearness of the writing on 5-point scales from "not good at all" to "very good". Subjects also evaluated the overall message.

Five message perception items were used:

1. In general, how would you rate the logic of the arguments presented?
2. In general, how would you rate the (amount and) quality of information in the essay?
3. In general, how would you rate the clearness with which the essay is written?
4. What would you give as a letter grade for the overall quality of the theme?
5. If the essay had no "simple" errors in it (for example, spelling errors), and you were basing a grade only on the content and style of writing, what would you give as a letter grade for it?

2) Perceived credibility of source as a function of message quality was measured with two seven-point semantic differential scales. Subjects rated the source's competence and trustworthiness, two independent factors in source credibility.

3) Information gain was measured with a 10-item information quiz based on factual material in the essay. For example, "What does the essay say is the most undesirable effect of toothbrushing?" No attempt was made to construct "trick" questions. For the most part, the questions paraphrased the statement in the essay which included the correct answer. Subjects

received one point for each correct answer.¹

4) Subjects' attitude toward toothbrushing was measured with four 15-point agree-disagree statements. The four toothbrushing items were included among eight other opinion statements relating to health practices: regular physical checkup, chest X-Ray, use of penicillin, etc. A score of 15 on each indicated maximum agreement with the opinion statement (all positively stated). Such a score (max = 60) would mean minimal agreement with the position advocated by the experimental message; that the message had no effect on initial attitudes.

The four attitude statements were (Numbered as in 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 toothbrushing.
7. Frequent toothbrushing is a very healthy practice.
10. The best way to prevent tooth decay is to brush one's teeth frequently.

Subjects: In the initial experiment (February, 1966) subjects were 66 undergraduates in four sections of a junior-level speech class at Michigan State University. For the Experiment II (May, 1966) subjects were 57 undergraduates in one lecture section of a general business communications class at Michigan State University.

¹One question in the initial experiment ("What was the title of the essay?") was replaced with "What was the writer's definition of frequent toothbrushing?" in the Experiment II. It was found that the original item did not differentiate among subjects in various treatment groups; almost no subject could answer the item correctly.

Message: The basic message was a persuasive message developed by McGuire in his studies of resistance to attitude change. It was a 500-word attack on the merits of toothbrushing. (11) The message attacks a "cultural truism"--a positively evaluated concept in the American culture which is seldom subject to criticism. For example, "...brushing teeth so frequently tends to push back the gums and expose the non-enameled parts... often cause our gums to bleed...can produce mouth cancer..."

Design: An after-only design was used, with the No-Error treatment group serving as the control or baseline for effect of the unadulterated message. Since the differential effects of relative numbers of errors was of primary interest, pretest measures were not conducted. It was assumed that individual differences among subjects, including ability to perceive errors, initial attitude toward toothbrushing, and familiarity with the arguments presented, would be effectively controlled through random assignment of subjects to treatments. However, previous findings on evaluation of the concept and effectiveness of the message were used as additional comparison points. (11)

Procedure: In both administrations, subjects were randomly assigned to treatments. The course instructors introduced the author as a staff member of the University Office of Institutional Research. The purpose of the study was given as "...an attempt to examine and hopefully improve upon the manner in which student themes, essays and term papers are handled by classroom instructors." Subsequent discussion with the subjects indicated that the guise was effective.

The experimenter distributed a booklet to each class member containing one of the four versions of the experimental message. Distribution was random in each of the course sections.

The cover sheets for both the Experiment I and Experiment II described the same ploy. Subjects were told that many classes in the University were being asked to read and evaluate a variety of themes actually submitted in freshman courses, and that booklets contained themes mechanically reproduced in the form submitted. The fictional freshmen had been given the assignment of writing a 400-600 word theme on any everyday topic, after doing some library research for background information. The themes had already been graded by instructors; this study was designed to evaluate the adequacy of current grading procedures.

In the initial experiment, subjects were asked to read the theme carefully, and underline the main points made by the writer. In the second experiment, subjects were asked to indicate any errors that were noticed by circling misspelled words, putting an X over incorrect or missing punctuation and underlining errors in grammar.

The cover sheet was followed by the experimental message, the five message evaluation items and source credibility scales. When subjects had completed this portion, they were told that a second part of the study would be distributed and were asked not to refer back to Part I.

Part II consisted of 12 opinion statements (including the four toothbrushing items); and Part III was the 10-item information quiz. After the subjects completed this section, the test booklets were collected, and the true purpose of the experiment was explained.

CHAPTER III

RESULTS

Analyses of data will be presented in four sections:

(1) Experiment I; (2) Experiment II; (3) Reanalysis; and, (4) Support for hypotheses across all analyses.

The overall analysis of data was a Friedman two-way analysis of variance (17). This treated the nine dependent variables as replications, ranking the mean treatment scores for each variable, then analyzing the overall treatment differences in terms of their rank score sums.

Single classification analysis of variance was computed for each variable to test significance of difference, overall, among treatment groups.

Experiment I

Overall Analysis: The data (Table 2) indicated that across the set of dependent measures three of the nine F-values were significant. However, ranks of the means across treatment groups were in the predicted direction, yielding significant results on the Friedman analysis of variance ($p < .02$).

Perceptions of Message: Deterioration in message quality led to significantly different evaluations on logic of content, overall evaluation, and evaluation based on writing style ($p < .05$). It should be recalled that the content of the arguments was identical across treatments; only frequencies of errors were manipulated.

Table 2. Experiment I: Means of Message Quality Effects

Measures	<u>Treatments</u>				<u>p*</u>
	<u>No</u> <u>Errors</u>	<u>12</u> <u>Errors</u>	<u>24</u> <u>Errors</u>	<u>48</u> <u>Errors</u>	
I. Perceptions of Message:					
a. Logic of Content	3.7 (2)**	3.8 (1)	3.3 (3)	3.2 (4)	.05
b. Information Quality	3.0 (2)	2.9 (3)	3.1 (1)	2.7 (4)	n.s.
c. Writing Clarity	3.8 (1)	3.3 (2)	3.1 (3)	2.8 (4)	n.s.
d. Overall Evaluation	3.3 (2.5)	3.4 (1)	3.3 (2.5)	2.4 (4)	.05
3. Style Evaluation	3.4 (3)	3.6 (1)	3.5 (2)	2.8 (4)	.05
II. Perceptions of Source:					
a. Competence	4.6 (1)	4.4 (2)	4.3 (3)	3.5 (4)	n.s.
b. Trustworthiness	4.9 (1.5)	4.1 (3)	4.9 (1.5)	3.8 (4)	n.s.
III. Attitude Toward Topic:	38.7 (2)	40.9 (4)	39.5 (3)	37.9 (1)	n.s.
IV. Information Gain:	5.6 (1.5)	5.4 (3)	5.6 (1.5)	4.6 (4)	n.s.
n:	16	16	16	18	
Sum of Treatment Ranks:	(16.5)	(20)	(20.5)	(33)	
Predicted Ranks:	9	18	27	36	

(Analysis of Variance of Ranks: $X^2_R = 10.4$, $df = 3$, $p < .02$)

*Based on values of F; critical value of F = 2.76 (.05), $df = 60$

**These parenthetical numbers represent the ranking of the means across the four treatments for each dependent measure. The means are ranked from high (most favorable) to low (least favorable) for all variables except the Attitude Toward Topic measure. For that, the lower the score, the more the attitude corresponded to the direction of the message.

All message perception items, including clarity of writing and information quality, showed least favorable ratings in the Extreme-Error condition.

Perceptions of Source: Both items in the source evaluation--competence and trustworthiness--showed highest rankings for the No-Error treatment, with the Extreme-Error treatment ranked as fourth.

Attitude Toward Topic: Results were contrary to predictions, both in terms of statistically significant differences and direction of ranks. Since McGuire got pre-attack mean attitude scores greater than 14 on a 15-point scale using these cultural truisms (11) the four versions were apparently equally effective in attacking the topic of the message.

Information gain: Differences in information scores across the four message treatments were non-significant, although they were in the predicted direction.

Experiment II

In this experiment, subjects were asked to mark all errors perceived. This was mainly intended as a device to force attention to errors, thereby maximizing their effects, if any. This also allowed a measure of errors actually operating, as distinct from errors experimentally introduced.

Overall Analysis: Results of the Friedman AOV (Table 3) indicated even stronger trends in the same direction ($p < .001$) than those found in Experiment I. Predicted rankings would have the No-Error treatment with a rank of 1 on each dependent measure, and the Extreme-Error treatment with

Table 3. Experiment II: Means of Message Quality Effects

<u>Measures</u>	<u>Treatments</u>				
	<u>No</u> <u>Errors</u>	<u>12</u> <u>Errors</u>	<u>24</u> <u>Errors</u>	<u>48</u> <u>Errors</u>	<u>p*</u>
I. Perceptions of Message:					
a. Logic of Content	3.9 (1)**	3.2 (2)	3.0 (3)	2.9 (4)	n.s.
b. Information Quality	3.8 (1)	3.3 (2)	2.6 (3)	2.3 (4)	.05
c. Writing Clarity	4.5 (1)	3.1 (2)	2.8 (3)	2.4 (4)	.001
d. Overall Evaluation	4.1 (1)	3.0 (2)	2.6 (3)	2.2 (4)	.001
e. Style Evaluation	4.3 (1)	3.3 (2)	2.9 (4)	3.1 (3)	.01
II. Perceptions of Source:					
a. Competence	5.5 (1)	4.1 (2)	3.7 (3)	3.3 (4)	.01
b. Trustworthiness	5.1 (1)	4.3 (2)	4.1 (3.5)	4.1 (3.5)	n.s.
III. Attitude Toward Topic:	38.0 (2)	42.8 (3)	37.7 (1)	44.4 (4)	n.s.
IV. Information Gain:	6.3 (1)	5.2 (3)	5.3 (2)	4.6 (4)	n.s.
n:	8	14	16	17	
Sum of Treatment Ranks	(10)	(20)	(25.5)	(34.5)	
Predicted Ranks	9	18	27	37	

(Analysis of Variance of Ranks: $\chi^2_R = 21.0$, $df = 3$, $p < .001$)

*Based on values of F; critical value of F = 2.84 (.05), 4.31 (.01), 6.60 (.001); $df = 40$

**These parenthetical numbers represent the ranking of the means across the four treatments for each dependent measure. The means are ranked from high (most favorable) to low (least favorable) for all variables except the Attitude Toward Topic measure. For that, the lower the score, the more the attitude corresponded to the direction of the message.

a rank of 4, yielding a sum of ranks of 9, 18, 27, and 36 across the four error treatments. These predictions compared favorably with those obtained: 10, 20, 25.5, and 34.5

Perceptions of Message: F-values for four of the five measures were significant. The item which asked for evaluation of "amount and quality" of information in Experiment I, dealt with quality alone here; the F was significant ($p < .05$). F values were significant for three other measures: Writing Clarity ($p < .001$); Overall Evaluation ($p < .001$); and, Style Evaluation ($p < .01$). Evaluations based on perceived logic were not significantly different across treatment groups.

A perfectly predicted rank ordering was observed across message treatments in all items except evaluation based on style.

Perceptions of Source: The competence item significantly differentiated among treatment groups on ranking of means as predicted, F-values ($p < .01$). Differences were non-significant for the trustworthiness item.

Attitude Toward Topic: Differences among treatment means were somewhat higher than in Experiment I, but still insignificant. In contrast with the first experiment, the Extreme-Error message was least persuasive here (rank of 4).

Information Gain: While rankings of mean scores were in the predicted direction across treatments, there was no significant difference in information gain. Subjects in the No-Error treatment scored 17% higher than those in the Extreme-Error group (6.3 vs. 4.6).

Table 4. Reanalysis of Experiment II - Subjects Divided into Quartiles According to Errors Perceived: Means of Message Quality Effects

<u>Measures</u>	<u>Quartiles</u>				
	I (0-12)	II (13-21)	III (22-26)	IV (27-49)	p*
I. Perceptions of Message:					
a. Logic of Content	3.8 (1)**	3.3 (2)	2.8 (3.5)	2.8 (3.5)	.01
b. Information Quality	3.8 (1)	2.7 (3)	2.9 (2)	2.8 (4)	.05
c. Writing Clarity	4.4 (1)	2.7 (2)	2.6 (3)	2.3 (4)	.001
d. Overall Evaluation	4.2 (1)	2.5 (2.5)	2.5 (2.5)	2.2 (4)	.001
e. Style Evaluation	4.1 (1)	3.0 (3)	3.0 (3)	3.0 (3)	.01
II. Perceptions of Source:					
a. Competence	5.4 (1)	3.9 (2)	3.4 (3)	3.1 (4)	.001
b. Trustworthiness	5.0 (1)	4.4 (2)	3.8 (4)	3.9 (3)	.05
III. Attitude Toward Topic:	38.3 (2)	35.2 (1)	44.9 (4)	44.2 (3)	n.s.
IV. Information Gain:	6.4 (1)	4.6 (3)	5.5 (2)	4.5 (4)	.05
	n: 13	14	13	15	
Sum of Treatment Ranks	(10)	(20.5)	(27)	(32.5)	
Predicted Ranks	9	18	27	36	
(Analysis of Variance of Ranks: $\chi^2_R = 19.7$, df = 3, p < .001)					
Mean Errors Perceived:	5.7	17.5	24.2	35.1	

*Based on values of F; critical value of F = 2.84 (.05), 4.31 (.01); 6.60 (.001); df = 40

**These parenthetical numbers represent the ranking of the means across the four treatments for each dependent measure. The means are ranked from high (most favorable) to low (least favorable) for all variables except the Attitude Toward Topic measure. For that, the lower the score, the more the attitude corresponded to the direction of the message.

Reanalysis

Based on the frequency of errors marked in the first analysis of Experiment II, the pool of subjects was divided into quartiles: Error Quartile I included subjects who marked 0-12 errors; Error Quartile II, subjects who marked 13-21; Error Quartile III--22-36; and Error Quartile IV--27-49. A comparison of errors introduced and errors perceived appears in Table 5.

Table 5. Comparison of Errors Introduced and Errors Actually Perceived in Experiment I; "Errors Perceived" Represents the mean Values of Quartiles

		<u>Error Treatments</u>			
		<u>No</u>	<u>Moderate</u>	<u>High</u>	<u>Extreme</u>
Errors Introduced		0	12	24	48
n		8	14	16	17
		<u>Error Quartiles</u>			
		<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>
Errors Perceived		5.7	17.5	24.2	35.1
n		13	14	13	15

Overall Analysis: The regrouping of subjects strengthened some of the trends indicated in the first analysis of Experiment II (Table 5.) The Friedman AOV indicated that the overall pattern of rankings was in the predicted direction ($p < .001$). F-values were significant for 8 of the 9 dependent messages.

Perceptions of Message: In this analysis, all F-values were significant: Logic ($p < .01$), Information Quality ($p < .05$), Clarity ($p < .001$),

Overall ($p < .001$), and, Style ($p < .01$).

Perceptions of Source: Overall differences were significant for both measures (competence: $p < .001$; trustworthiness; $p < .05$).

Attitude Toward Topic: Overall differences were not significant.

Information Gain: Scores across message treatments were significantly different ($p < .05$). The No-Error group answered an average of 6.4 questions correctly, while the Extreme-Error group scored 4.5.

Support for Hypotheses

Hypothesis 1: As number of errors increases, related components of the message will be evaluated less favorably.

Overall differences among the four error treatment groups were significant on 3 of the 5 measures in Experiment I. While these data suggested that the message versions were evaluated differently, there was only partial support for the hypothesis that evaluations would decrease linearly with increasing errors.

In Experiment II, with subjects sensitized by an error-making task, overall differences were significantly different on 4 of the 5 items. Reanalyzing these data by grouping subjects in quartiles according to errors perceived yielded significant results on 4 of the 5 items. Within the conditions of this experiment, the data lend more than minimal support for the hypothesis.

Hypothesis 2: As the number of message inaccuracies increases, perceptions of the message source will become less favorable.

Results of Experiment I do not support this hypothesis, although competence means are in the predicted direction. Under conditions of

Experiment II and its reanalysis, this hypothesis does gain partial support. In the first analysis, differences across treatment groups on competence are significant overall. In the reanalysis, these differences were significant ($p < .001$) for competence, with overall differences at $p < .05$ for trustworthiness.

Hypothesis 3: As message quality deteriorates, the amount of information learned from the message will decrease.

Differences in information scores across treatment groups were insignificant in Experiment I and the first analysis of Experiment II. However, learning varied significantly in the predicted direction in the reanalysis ($p < .05$).

Hypothesis 4: Attitude change varies inversely with message quality deterioration, such that as number of message errors increases, attitude change will decrease.

The data did not support this hypothesis.

CHAPTER IV

DISCUSSION

The purpose of this study was to investigate the effects of deterioration in message quality on evaluations of the message and its source, on learning, and on persuasion. Message quality was defined as following or violating normative rules of spelling, grammar and punctuation. Message quality deterioration was defined as increasing numbers of violations of the accepted rules. Effects were defined as differential markings on paper-and-pencil scales designed to tap: 1) Evaluation of Message: logic, information quality, clarity, overall quality, and evaluation based on style; 2) Evaluation of Source: competence and trustworthiness; 3) Information Gain; and, 4) Persuasive Impact.

It was suggested that prior research on aspects of message quality either had not clearly distinguished between the acceptable form and the deviation (variations of, rather than deviations from) or had treated only one or two types of message errors at a time. The present study proposed to expand on this previous work.

Conclusions

Hypothesis 1: The data lend partial support for the hypothesis that other aspects will be evaluated less favorably as message quality deteriorates. Under conditions of Experiment I, where attention was not purposively called to message errors, the message versions were evaluated differently on the logic, overall evaluation, and style evaluation

measures (3 of the 5 message perception items). The means across treatments, when ranked by size, tended to decrease linearly.

In Experiment II, and more so in the Reanalysis, results were clearer. Under conditions where subjects were asked to find and mark errors, response to errors was more direct. Logic, quality, overall, and style evaluations decreased with increasing errors.

From Experiment I, it may be concluded that when subjects perceive and react to message errors according to their own abilities and values, the errors influence message evaluation, but not necessarily as a function of increasing frequency.

When forced to find and mark errors, subjects seem to use the presence of errors as a more direct basis for evaluation of the message as a whole.

Hypothesis 2: When attention to errors is not forced, errors do not play a significant role in influencing source evaluations on the dependent measures used here.

Forced attention to errors elicited greater differences across treatment groups, especially when responses were analyzed according to errors actually perceived. Competence of the message source was more sensitive to increasing error rates than trustworthiness.

Hypothesis 3: Unforced perceptions of errors in Experiment I did not significantly influence amount of information learned, although mean quiz scores were ordinally lowest in the Extreme-Error treatment.

Again, the increased salience of errors in Experiment II increased their effect. To the extent that subjects perceived and marked errors, quiz scores decreased linearly with increasing errors.

Hypothesis 4: From the present investigation, it must be concluded that persuasive impact of a message is not significantly effected by message quality deterioration. No significant attitude change occurred.

Factors Influencing the Findings

Message Evaluation: In effect, subjects were given a forced choice of criteria by which to judge the message. While message logic, information quality, clarity, etc. seemed to be reasonable evaluations to make, they may not tap the dimensions by which people actually form evaluations about messages. And even given that the items used tapped some valid dimension, it may not have been the one most affected by message quality deterioration.

A possible approach to this problem in future research is to allow subjects to give free response evaluations of sample messages. Polar adjectives could then be selected from the responses to develop semantic differential scales, in the same way used in the sensationalism work (18). As content-free measure of what decoders mean by message quality, it could be used to measure effects of a broad range of independent variables.

The style evaluation item ("If the essay had no 'simple' errors...") may have sensitized subjects to the presence of errors. Data in Experiment I did not indicate a significant effect from this sensitization. Subjects had already read the message and responded to four evaluation items in which any effect of errors was already operating, by the time they got to the style evaluation item. Since all subjects were exposed to this possible sensitization to the same extent, it might have operated as a constant on all scores but, as the data suggest, an insignificant one.

Since the instructions in Experiment II were specifically aimed at finding and marking errors, it is unlikely that possible sensitization from the style item altered the task orientation.

Source Evaluation: Lack of consistent results on the competence and trustworthiness items suggest that the items themselves may not have been adequate to test the hypothesis. As mentioned in the message evaluation discussion, if the items used tapped some dimension of source evaluation, it might not have been the one affected by message quality deterioration. It is suggested that future work include the source evaluation instrument developed by Berlo and Lemert (2).

Information Gain: Differences across treatments were significant only in the Reanalysis, indicating that errors influence learning only to the extent that they are actually perceived. One explanation is that the additional perception of errors tended to overload the channel, making it more difficult for subjects to perceive both errors and the information content. Possibly, imposition of any task could have interfered with learning. However, the task imposed in Experiment I, while perhaps not as demanding, did not have this effect.

Attitude Change: Use of a "cultural truism" in this study might have contributed to the results. The truism has a low resistance to attack. While none of the subjects turned against toothbrushing, none retained anything approaching the assumed high initial regard for the concept.

This suggests that 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 attitude. The effect of message quality deterioration would easily be cancelled by the strong persuasive potential of the situation.

An alternative rationale for predicting message error effects on attitude was suggested by the work of Festinger and Maccoby (6) with their "distraction Hypothesis." These investigators presented two filmed versions of a speech attacking college fraternities: one showing a speaker ("a young college professor") making the presentation; the other, using a musical fantasy with the speech "voiced over." The sound tracks were identical in both versions.

Results indicated that subjects who were exposed to the distracting (fantasy) version were more influenced and rejected the source less than those subjects who saw the ordinary film version. The explanation was that subjects who saw an ordinary film would mentally rehearse counterarguments, thus making their original position more resistant. Those who saw a distracting film would be less able to covertly counterargue, and thus be more influenced by the persuasive message. They would also rate the source's qualification and fairness more favorably (comparable to the competence and trustworthiness items used in the present investigation).

In terms of the present study, an extreme number of message errors could constitute a distraction. If so, persuasive impact of the message might decline at the moderate error rates, but increase in the condition where errors became a distraction. There are several points which tend to make the distraction hypothesis inappropriate for the present

investigation (although, perhaps not for the overall study of message quality.)

The distracting fantasy film was described as "very amusing and rather absorbing to watch" (6). However, data in the present work indicated a negative reaction to message errors; less favorable evaluation of both message and the source with increasing errors. It therefore cannot be assumed that the message errors were of the same genre of distraction as a fantasy film.

Another finding in the Festinger and Maccoby study indicates that less rejection of the source accompanies the increase in persuasion in the distracting condition. Data from the present study show decline in source competence ratings (rejection) with increasing errors. If distraction is necessarily accompanied by less rejection, it apparently was not operating in the experimental situation used here.

It is possible that distraction, as well as other alternatives offered above, would be supported with more extreme deterioration of message quality. This could be accomplished with additional errors of the types used here, inappropriate lexical items, word and sentence length inappropriate to the audience, excessive formality, e.g. lack of personal references in a personal letter, reference or lack of reference to outside authorities or quoted sources.

Purely mechanical mistakes might also be explored: Transposed letters, words or sentences, broken letters, wrong font, missing letters, ragged left-hand margins in the text, pictures out of register, pages improperly trimmed, blocks of type printed upside down, smeared printing,

whole pages missing or out of place, ragged margins in otherwise justified columns, uneven lightness and darkness of printing, etc.

At some point, the physical introduction of mistakes will likely create an incredulous situation. An alternative might be to hold number of errors constant at some level and vary the source and medium. In this case, expectations would be violated to achieve the quality deterioration effect.

For example, 48 errors in a freshman theme might not be extremely unusual, but 10 errors in a Master's thesis is unspeakable, and even five errors on the page of a reputable text book is considered quite extreme.

Implications

Difference in responses in Experiment I and II indicates something more than presence of errors. A distinction appeared between the effect of errors perceived naturally among other physical cues which compose a printed message, and when attention was specifically called to them. The Reanalysis indicated that errors influence evaluations and learning even more so as a function of the frequency with which they are perceived.

In terms of generalizability, the situation of Experiment I is the more "natural" message decoding situation; people reading for content without the special task of finding errors. Since Experiment II showed errors to be influential as hypothesized when perceived, it appears that perception of message errors is normally low, and/or that errors play an insignificant role in affecting variance in the measures used.

To combine some of the quantification of Experiment II with the generalizability of the first study, an error perception instrument might

be added as a final item, e.g. an ordinal measure rating error rate in the message from "many" to "none," or quantitative estimate of error frequency.

Several indices of errors perceived were computed; these appear in Table 6 below.

Table 6. Errors Introduced Compared to Errors Actually Perceived in Experiment II.

<u>Treatment</u>	<u>n</u>	<u>Errors Introduced</u>	<u>Perceived of Introduced</u>	<u>Additional Perceived</u>	<u>Total Perceived</u>	<u>Additional of Total</u>
No-Error	8	0	-----	5.4	5.4	-----
12-Error	14	12	7.2 (60%)	10.8	18.0	60%
24-Error	16	24	11.8 (49%)	8.3	20.2	41
48-Error	17	48	24.8 (51%)	7.0	31.8	22

It was interesting to note that subjects did not sufficiently distinguish among error classes to allow coding on this basis. For example, incorrect plural endings (grammatical errors) were often circled, indicating a perceived misspelling. Subjects perceived varying numbers of errors other than those introduced. Since even the manipulated errors were not coded by subjects according to the investigator's criteria, it was impossible to impose categories on the additional errors.

Of those errors introduced, subjects perceived roughly half. But looking at total errors perceived, subjects tended to overestimate the two lower-error conditions (5.4 errors in the No-Error message, 18 in the 12-Error message), while underestimating the more extreme error conditions (20.2 errors in the 24-Error message; 31.8 in the 48-Error version.)

This effect was especially evident in the Reanalysis (Table 5). While there is overall linearity of mean ranks, ranks on individual items suggest a shift between low and high errors rather than a treatment by treatment decrease in means. For example, means across Error Quartiles on the logic item were 1, 2, 3.5, 3.5; on Overall Evaluation: 1, 2.5, 2.5, 4; on Style Evaluation: 1, 3, 3, 3.

Errors perceived by subjects in addition to those introduced were a higher percentage of the total in the lower-error messages (100% and 60%) than in the more error-laden messages (41% and 22%).

This suggests possible future work on the probability of perception--cue value--of errors, and their "meaning"--extent to which they are used as basis for evaluation. Present findings suggest that perception and influence are relatively low under normal conditions of decoding, but the experiments were not designed to test these hypotheses directly.

An overall implication of the present findings is that message quality deterioration makes a difference in source and message evaluation and learning, but that the direct effect of message errors depends on their relevance to the situation. When subjects were specifically asked to find errors, evaluations were directly effected by errors perceived, but when content was the focus of attention, errors were less influential. Perhaps "errorlessness" is one of many dimensions in message quality evaluation; influencing the total evaluation differentially depending on the situation.

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APPENDIX: Test Booklet

EXPERIMENT 1: COVER SHEET

Office of Institutional Research

Michigan State University

February, 1966

ESSAY EVALUATION STUDY

This study is an attempt to examine and hopefully improve upon the manner in which student themes, essays and term papers are handled by classroom instructors and graders.

In this class and a number of other classes throughout the University, students themselves are being asked to read and evaluate a variety of themes actually submitted in freshman courses. Of course, the themes have already been graded by the instructor. We are trying to evaluate the adequacy of the current procedures.

This booklet contains one theme, written by a freshman student. Other booklets contain different themes. The point is to do this study with a representative collection of themes written by students. Some of the themes are considered to be quite good; others are considered to be quite bad. The decision as to whether this one is good or bad will be up to you.

The theme in this booklet has been mechanically reproduced in exactly the same form as the student submitted it. The student had been given the assignment of writing a 400-600 word theme on an everyday topic, after doing some library research for background information. The choice of topic was to be made by the student.

Specifically, we wish you to read the theme carefully. As you read the theme, we wish you to underline the main points made by the writer of the theme, if there are any main points. Underline the words, clause, or sentence which are the main points as you read the theme. Then, at the end of the theme, you will find a few evaluation items which permit you to indicate how good or how bad you think this particular theme is.

Please begin with the theme on the next page. Thank you for helping us with this.

EXPERIMENT 2: COVER SHEET

Office of Institutional Research
Michigan State University
May, 1966

Essay Evaluation Study

This study is an attempt to examine and hopefully improve upon the manner in which student themes, essays and term papers are handled by classroom instructors.

This booklet contains one student theme. Other booklets contain different themes. Some of them are considered to be quite good; others are considered to be quite bad.

The theme in the booklet has been mechanically reproduced in exactly the form in which it was turned in. The assignment was to write a 400-600 word theme on an everyday topic, after doing some library research for background information. Choice of topic was left to the student.

Specifically, we wish you to read the theme carefully. As you read the theme, we wish you to indicate errors as follows:

1. CIRCLE all the words that are misspelled.
2. Make an X over punctuation that is not needed, or where punctuation ought to be, but is missing.
3. Underline errors in grammar, such as verb tense, number, gender, etc.

You need not make the specific corrections; just indicate where an error exists, and indicate all the errors you can find.

Then, at the end of the theme, you will find a few evaluation items which permit you to indicate how good or how bad you think this particular theme is.

Please begin with the theme on the next page. There is no time limit, so please work through the essay carefully. Thank you for helping us with this.

ALL ADMINISTRATIONS: NO-ERROR MESSAGE

Some Dangers of Excessive Tooth Brushing

Many people brush their teeth more or less automatically after each meal without realizing that of late, medical reports have been calling this procedure into question. Recent medical and biological studies indicate that the beneficial effects of constant tooth brushing have been exaggerated. Furthermore, it has been demonstrated that a number of bad effects can result from brushing teeth so often. Constant gum irritation 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 does not do any great amount of good and can do much harm.

The most undesirable effect of tooth brushing is the damage it causes to the gums. All of us must have noticed that when we brush our teeth, we often cause our gums to bleed. Such bleeding, obviously, indicates some degree of gum injury. These injuries, besides the physical damage they cause, increase the likelihood of infection. Doctors generally concede that most serious gum infections result from accidental injury to the gums inflicted during tooth brushing. Furthermore, repeated injuries of the gums caused by constant tooth brushing can, even when each of these injuries is only slight, produce mouth cancer. Also, frequent brushing can 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 no enamel under the portions covered by the gums. Tooth brushing pushes back the gums and exposes those unprotected parts of the teeth to decay-causing bacteria. It is apparent, then, that too frequent brushing can cause gum infections and even mouth cancer, and may increase rather than diminish the amount of tooth decay.

Even the enamel itself can be damaged by constant tooth brushing. Many tooth pastes and powders have been found to contain harsh abrasives which tend to wear down this enamel. This wearing and pitting of the enamel opens still another path by which the decay bacteria can destroy the teeth. The presence of some harsh abrasives is required in both tooth pastes and powders in order for these dentifrices to do an adequate job of making our teeth look clean. It is, therefore, inevitable that some harm is done to the enamel whenever we brush our teeth. While the abrasive effect of such brushing is very slight, the accumulated effects of constant brushing can be disastrous. This realization that brushing after every meal can well cause more harm than good has prompted many dental authorities to discontinue recommending such constant tooth brushing as a general health measure.

EXPERIMENT 1: MESSAGE PERCEPTION SCALES

Part I.

Now that you have read the theme, and underlined the main points you could find, we are interested in what you thought of the theme. Please make the following judgments about the essay you have just read:

1. In general, how would you rate the logic of the arguments presented?

☐ very good
☐ quite good
☐ fairly good
☐ not very good
☐ not good at all

2. In general, how would you rate the amount and quality of information in the essay?

☐ very good
☐ quite good
☐ fairly good
☐ not very good
☐ not good at all

3. In general, how would you rate the clearness with which the essay is written?

☐ very good
☐ quite good
☐ fairly good
☐ not very good
☐ not good at all

4. What would you give as a letter grade for the overall quality of the theme?

☐ A
☐ B
☐ C
☐ D
☐ F

5. If the essay had no 'simple' errors in it (for example, spelling errors), and you were basing a grade only on the content and style of writing, what would you give as a letter grade for it?

☐ A
☐ B
☐ C
☐ D
☐ F

ALL ADMINISTRATIONS: ATTITUDE STATEMENTS

Part II.

Sometimes, instructors and teachers are concerned over the possibility that their own attitudes may affect the manner in which they grade student papers. To determine whether grading is affected by such opinions, you are asked to indicate your own personal opinions toward the subject matter of the theme you have just read. In this section, please indicate your own opinions, at this moment, toward each item, and not necessarily what the essay might have said.

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 of the statements. Some of the statements deal directly with the subject matter of the theme. Others deal with related topics.

The following is an example of how the scale is to be used:

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
------------------------	--------------------	---------	-----------------	---------------------

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
------------------------	--------------------	---------	-----------------	---------------------

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
------------------------	--------------------	---------	-----------------	---------------------

We want your personal opinion on each statement, as you think at this moment. Please react to the statements on the next page.

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

Definitely Disagree	Mildly Disagree	Neutral	Mildly Agree	Definitely Agree
------------------------	--------------------	---------	-----------------	---------------------

2. Everyone should see his doctor at least once a year.

Definitely Agree	Mildly Agree	Neutral	Mildly Disagree	Definitely Disagree
---------------------	-----------------	---------	--------------------	------------------------

3. If everyone were to get a complete physical checkup once every year more good than harm would result.

Definitely Agree	Mildly Agree	Neutral	Mildly Disagree	Definitely Disagree
---------------------	-----------------	---------	--------------------	------------------------

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

Definitely Agree	Mildly Agree	Neutral	Mildly Disagree	Definitely Disagree
---------------------	-----------------	---------	--------------------	------------------------

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

Definitely Agree	Mildly Agree	Neutral	Mildly Disagree	Definitely Disagree
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6. One of the greatest single advances in the history of medical science was the discovery of penicillin.

Definitely Disagree	Mildly Disagree	Neutral	Mildly Agree	Definitely Agree
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7. Frequent tooth-brushing is a very healthy practice.

Definitely Agree	Mildly Agree	Neutral	Mildly Disagree	Definitely Disagree
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8. People should be urged to have a complete medical checkup as often as once a year.

Definitely Agree	Mildly Agree	Neutral	Mildly Disagree	Definitely Disagree
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EXPERIMENT 2: INFORMATION QUIZ

Part III.

Finally, we would like to see how well you, as the reader, can remember the points made in the theme. We are not interested in whether you agreed or disagreed with the theme, but can you recall what the writer had to say. Please answer the following questions as well as you can. Do not look back to the essay for the answers.

1. The essay suggests two possible bad effects of frequent tooth-brushing. What are they?
2. Instead of frequent tooth-brushing, what does the essay suggest as an alternative?
3. What does the essay say is the most undesirable effect of tooth-brushing?
4. Why do tooth-pastes and tooth-powders contain harsh abrasives, according to this essay?
5. What two things does frequent tooth-brushing do to the enamel that opens the way for decay bacteria?
6. What was the writer's definition of 'frequent tooth-brushing?'
7. Here are two true-false items. Circle the correct answer.

True	False	a. The writer refers to medical studies to support his viewpoint.
True	False	b. Tooth enamel covers the exposed and unexposed portions of the tooth.

If you have any general reactions to this kind of study, please use this space:

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

Definitely Disagree	Mildly Disagree	Neutral	Mildly Agree	Definitely Agree
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10. The best way to prevent tooth decay is to brush one's teeth frequently.

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

Definitely Disagree	Mildly Disagree	Neutral	Mildly Agree	Definitely Agree
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12. We should all have medical checkups, not only when we feel ill, but also at frequent intervals even when we feel well.

Definitely Disagree	Mildly Disagree	Neutral	Mildly Agree	Definitely Agree
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Now, please tell us what you think of the writer of this theme.

How competent do you think he(she) is?

competent _____:_____:_____:_____:_____:_____:_____incompetent
very very

How trustworthy do you think he is?

trustworthy _____:_____:_____:_____:_____:_____:_____untrustworthy
very very

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