

STANFORD UNIVERSITY  
STANFORD, CALIFORNIA 94305

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INSTITUTE FOR COMMUNICATION RESEARCH

C-14  
CYPRESS HALL  
Telephone:  
415/321-2300  
Extension 2507

December 17, 1973

Dr. George Gerbner  
The Annenberg School of Communication  
University of Pennsylvania  
Philadelphia, PA 19104

Dear George:

Enclosed are two copies of a paper reporting a study  
Don Roberts and I did. I am submitting it for consideration in  
the Journal of Communication.

Best wishes for a good holiday season.

Sincerely,

*Matilda*  
Matilda B. Paisley  
Research Associate

Chow - Comms  
Bill McG

Overlooked  
part

121

How many  
total to feedback  
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Get up our straw-man  
cond. to be...  
New results -  
in detail - better to  
add or to  
challenges

December 20, 1973

Matilda B. Paisley  
Research Associate  
Institute for Communication Research  
Stanford University  
Cypress Hall G-14  
Stanford, California 94305

Dear Ms. Paisley:

We have received your article entitled "The Joint Effects of Inoculation and Distraction on Attitude Change" which you submitted for publication in the Journal of Communication. Our staff and readers will give it careful consideration, and we will notify you of our decision on it as soon as possible.

Thank you for giving us a chance to read it.

Sincerely,

Susan Schmidt,  
Associate Editor

SS:ekd

Too complex  
inadequately  
designed  
Too much

Furthering in forward

## UNIVERSITY INTRAMURAL CORRESPONDENCE

The Annenberg School  
of Communications

TO: George Gerbner  
FROM: Larry Gross

Comments on paper by Paisley and Roberts:

To be brief and blunt, I think this is a bad paper. The study that it reports is ill-conceived and the report is confusing and non-illuminating. The style is typical of the worst social-psych writing and the data presentation is obscure to say the least. Some specifics:

After going over the inoculation and distraction studies (without ever really setting the issue in a broader perspective which might make it interesting to a reader who is ~~not~~ an aficionado of social psych experiments) the authors get to their point by saying that "it was reasoned that combining the two treatments would enable closer examination of how manipulation of conditions assumed to influence counterarguing behavior, and therefore resistance to persuasion, actually functioned." (p.3). The reasoning here is never spelled out and, in light of the eventual results of the study, seems a bit dubious. The authors might have done better to examine the notion of counterarguing a little more critically than they seem to have done. They go on to throw in a question about the effectiveness of a spoken as opposed to a written inoculation manipulation but don't say why this is interesting and what effect it might have on the overall import of the study. The final paragraph of the introduction (page 4) is, incidentally, a model of muddled writing.

In terms of the study itself, the authors fail to devote any attention to the "experimental reality" of the situation for their subjects. That is, what did the subjects in the distraction conditions think was going on? Did the authors ever ask them? If so, what did they say? If not, why not? Ignoring this kind of central methodological problem is one of the major weaknesses of most social-psych experiments. I see no justification for encouraging it in the Journal of Communication.

The four paragraphs on page 7 dealing with the analysis rival the paragraph on page 4 in their ~~sheer~~ unclarity and ~~clotted~~ jargonesque style. ~~The discussion of data analysis is divided into three stages -- pre-analysis, mid-analysis, and post-analysis. Certain strategies and certain analysis models seem more appropriate at one stage than at another. Sic. Good grief.~~

The presentation of results is equally unclear and unilluminating (the tables are ~~not~~ much better -- they are not very self-explanatory. I suspected that the mean and standard deviation columns of Table 1 are reversed, for example, until I went back and checked -- they should indicate the range of the scale on the Table).

The discussion ~~opens~~ opens with a confusing and not very helpful "Table" and never rises above the rather trivial level of the concerns the authors expressed in the introduction.

121

THE JOINT EFFECTS OF INOCULATION AND DISTRACTION ON ATTITUDE CHANGE

Matilda B. Paisley

Donald F. Roberts

March, 1973

Stanford University

## ABSTRACT

In an effort to clarify two important factors said to influence resistance to attitude change, the experiment investigated the effects of inoculation and distraction. A 2x2 factorial design (low/high distracted, inoculated/non-inoculated) was replicated in two institutions using two issues. Session 1 used printed materials to inoculate and Session 2 used filmed materials to distract and provide the persuasive message. Special attention was given to data analysis. A pre-analysis phase included testing for single-factoredness among the attitude items; a mid-analysis phase ANOVA emphasized to test for effects of distraction and inoculation; and a post-analysis phase used covariance and correlations to specify observed relationships. Results indicate a strong effect of inoculation on one's ability to resist persuasive messages ( $F=7.71, p < .01$ ). This is an extension of early work that dealt with written messages. Analysis indicated the distraction manipulation was so effective that students neither learned the message nor were convinced of the speaker's position. Possible explanation of results are discussed.

## The Joint Effects of Inoculation and Distraction on Attitude Change<sup>1</sup>

Clarification of factors influencing resistance to attitude change has been the focus of many research studies. Two examples are McGuire's (1964) inoculation experiments and Festinger and Maccoby's (1964) distraction experiments that specify ways in which resistance to persuasion takes place. The present study examines the combined effectiveness of inoculation and distraction in inducing resistance to persuasive messages.

McGuire's theory is based on an analogy to biology. He found that a person can be made resistant to an attacking message much in the same way that a person is made resistant to an attacking virus. Pre-exposure to a weakened form of the attacking element (be it message or virus) enables the person to stimulate his defenses so that later exposure to more extreme forms of the element can be combated. In McGuire's experiments inoculation took the form of a written message given to students under the guise of a reading and writing skills test. The experiment had two parts. In the first part, the student was either given or made to give arguments that refuted a persuasive statement which countered the student's own belief. The messages all dealt with health issues such as "It is important to brush one's teeth after every meal, if at all possible."

In the second part of the experiment, the student read a persuasive message that attacked his position. The results across a variety of specifying conditions indicated that students who were

made aware of counterarguments to the persuasive message, were less persuaded. McGuire's conclusion was that the counterarguments used to forearm students were then used by them to resist subsequent attack.

Festinger and Maccoby, relying on evidence of effects of forewarning (Allyn and Festinger, 1961) also hypothesized that counterarguing explains how individuals effectively resist persuasion. They reasoned that the listener is not passive, but is mentally active. This activity manifests itself in subvocal counterarguing. The experiments indicated that distraction (operationally defined as watching a highly amusing film while listening to a speaker advocate a position contrary to one's own) inhibited one's ability to counterargue against the message. The results showed that the students who were initially strongly opposed to the message in the distracted condition were more persuaded than those in the non-distracted condition (operationally defined as viewing a film of a speaker advocating a position contrary to one's own).

Recently Osterhouse and Brock (1970) have specified conditions that produced the distraction-acceptance relationship. These conditions are:

1. The message condition: Two kinds of messages yield successful results: those that negate strongly held positions and those that propose actions which have negative consequences for the listener.
2. The distraction condition: A distractor must be used which

effectively inhibits counterarguing. One specific suggestion is a task which requires vocal activity. Their evidence indicates that under some circumstances vocal distraction may be more effective than visual or manual distraction.

3. The learning condition: Complete learning of content across experimental conditions must occur. The message content must be learned by both the distracted and the non-distracted groups. If the non-distracted group learns more and is persuaded more, then superior learning of the arguments in the message, rather than distraction-acceptance, could well account for the results.
4. The administration condition: Single person administrations inhibit the likelihood of group support for the subject's existing attitude. In other words, subjects in a group-administered experiment often have verbal or non-verbal cues of support from fellow subjects that may help them to resist the persuasive message.

Given the results and conclusions of both inoculation research (cf. McGuire, 1964) and distraction research (cf. Festinger & Maccoby, 1964; Osterhouse and Brock, 1970), it was reasoned that combining the two treatments would enable closer examination of how manipulation of conditions assumed to influence counterarguing behavior, and thereby resistance to persuasion, actually functioned. In addition to permitting examination of whether there is a relationship between inoculation and counterargumentation and between distraction and counterargumentation (via collection of counter-

*why?*

arguments generated by subjects), we were also interested in determining whether the inoculation effect would be obtained using a spoken as opposed to a written message (a question which has not been dealt with in prior research).

This experiment was an attempt to discover whether inoculation would increase counterargumentation and resistance to persuasion and whether distraction would decrease counterargumentation and resistance to persuasion or whether such a decrease would occur only under such limited conditions as high involvement or commitment.

#### Method

A 2 X 2 factorial design, crossing distraction (high and low) and inoculation (inoculated vs. non-inoculated) was employed with two replications, each using a different issue. The experiment required two sessions, the first to administer the inoculation treatment and the second to present the persuasive message and obtain measures of resistance to persuasion, counterarguing, and so forth.

Subjects were junior college students attending local schools. Two hundred forty-three students participated in session two and provided data for the "pre-analysis" described below. Of these, 188 students had also participated in session one. These 188 provided the data for the "mid-analysis" and "post-analysis" described below.

During the inoculation session, subjects were asked to read and underline important sentences in three, single-page messages. They were told the data from this exercise would be used to construct a

new reading comprehension test. For half the subjects, one of these messages comprised an inoculation message (cf. McGuire, 1964). The remaining subjects read irrelevant messages.

Three to five days later students saw a film advocating either establishing tuition for public schools or arguing against the practice of toothbrushing after every meal (both issues which pre-testing had indicated approached the status of cultural truisms and both of which were counter to most students' beliefs). The audio portion of the film carried the persuasive message and was the same for all students. For half the inoculated and half the non-inoculated subjects, the film visuals reinforced and emphasized the content of the message (non-distracted group). The remaining subjects saw a film with the same audio but which contained non-related visuals, a silent, comic film entitled A Chairy Tale (distracted group). Following the film, subjects completed a four part questionnaire.

Messages. McGuire found in pre-testing his college population that 'cultural truisms' existed in the area of health beliefs. He defined cultural truisms as "beliefs that are so widely shared within the person's social milieu that he would not have heard them attacked, and indeed, would doubt that an attack were possible." This type of belief is useful when the researcher would like control over the number of counterarguments available to the subject. Cultural truisms were important to this experiment not only because we were hoping to replicate McGuire's findings, using spoken rather than written messages, but also because we wanted to assess the use of counterarguments.

2  
Hyper  
realist

A pre-test among our college students showed that McGuire's truism, "It's a good idea to brush your teeth after every meal, if at all possible" could still be regarded as a truism. (Mean=4.5 on a -7 to +7 scale.) A second statement which seemed to be widely supported by the students was, "Public high school education should continue to be free of tuition costs to students and their parents." (Mean=5.4 on a -7 to +7 scale.) A film for each truism was produced. This allowed us to replicate the design across two content areas.

The Questionnaire. The questionnaire for each film was divided into four parts. Section A was an eight item opinionnaire. Section B provided space for listing of thoughts about the film. The students were encouraged to write statements supporting the message, statements opposing the message, or any statement indicating their thoughts during the film. Important here is that students were not forced to list counterarguments. This was an attempt to get at what was going on in their minds as they heard the message. Section C was a seven item knowledge test. Section D contained six items about the persuasiveness of the speaker and the effectiveness of the distraction. The specific nature of these items is indicated in Tables 1, 2, and 3.

The counterargument section was scored for position taken (In Favor, Opposed, Ambivalent), logicalness of arguments (Quite Logical, Not Particularly Logical), and strength of feeling (Strong Feeling, Not Particularly Strong Feeling). These were then combined to form two five-point scales.<sup>2</sup>

Data Analysis. The discussion of data analysis is divided into three stages -- pre-analysis, mid-analysis, and post-analysis. Certain strategies and certain analysis models seem more appropriate at one stage than at another.

Pre-analysis. Each of the attitude sections of the questionnaire was based on the assumption that a single dimension of the attitude was being measured. To test empirically for single-factorhood, the scales were factor analyzed. The principal components solution provided the needed check. If the first factor represents at least 50% of the total variance accounted for, then the assumption is made that items are single-factored. All items with loading of .50 or more were combined into an index.

Mid-analysis. During the second stage, the analysis of variance model is appropriate. The main effects of distraction and inoculation as well as interactions can be tested. Each previously constructed index was used as the set of scores for the analyses.

Post-analysis. After main effects and interactions were determined, we were still interested in correlations among the variables, and in specification of relationships. Both of these strategies helped us to better understand the result that the mid-analysis stage produced.

### Results

Pre-analysis. The eight, attitude-toward-toothbrushing items were factor analyzed. Results of this analysis are presented in Table 1. The general factor of the principal components solution accounted for

92% of the total variance. Two items had loadings below the .50 criterion and were eliminated. (See Table 1 for item means, standard deviations, factor loadings, and communalities.) The remaining six items had good communalities and strong loadings. Since standard deviations were not similar, z scores of the items were additively combined.

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Insert Table 1 about here  
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The general factor of the attitude-toward-tuition items, shown in Table 2, accounted for 75% of the total variance. Since single-factorhood again adequately accounts for the interrelationships of the items, z scores of the five items with .50 or greater loadings were combined into an additive index.

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Insert Table 2 about here  
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The six items designed to measure the persuasiveness of the speaker and the effectiveness of the distraction manipulation were also factored. They are presented in Table 3. The a priori expectation was a multi-factored solution, since some of the items were directed toward the effectiveness of the film distractor and some were directed toward speaker-persuasiveness. On the basis of low loadings on the general factor, two items were eliminated. The rotated solution then shows a two-factor structure for the four remaining items. Two items load strongly on each factor. Z scores of the items were added into a distraction index and a persuasiveness index.

was it speaker?  
in film?

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Insert Table 3 about here  
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Each student was also given a total knowledge score based on the number of correct answers to the seven item knowledge test. To ensure comparability with other scales, z scores of the seven items were added.

Mid-analysis. For each of the two issues, mean scores on each of the six different measures derived from the pre-analysis were computed. These measures were: Persuasion, Counterargument-logic, Counterargument-intensity, Knowledge, Distraction, and Speaker-persuasiveness. Mean scores for subjects who heard and responded to the toothbrushing message are presented in Table 4.

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Insert Table 4 about here  
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Looking first at Persuasion scores, analysis of variance revealed a main effect for inoculation ( $F=7.71$ ;  $df=1,84$ ;  $p<.01$ ). Subjects who experienced the inoculation treatment prior to message exposure were significantly more resistant to persuasion than were their non-inoculated counterparts. Neither the distraction nor the interaction effect approached significance. It is interesting to note, however, that contrary to our hypothesis, distracted subjects showed a tendency to be slightly more resistant to persuasion than non-distracted subjects.

Variance analyses showed no effect of distraction or inoculation on either counterarguing score. All subjects produced counters which

were similar in both logicalness and intensity. There were, however, main effects of distraction and of inoculation when both Distraction scores and Knowledge scores were submitted to analysis of variance.

As indicated by the means in Table 4, the distraction manipulation was highly successful, distracted subjects reporting much more distraction than did non-distracted subjects ( $F=83.64$ ;  $df=1,84$ ;  $p<.001$ ). There was also a somewhat unexpected effect for the inoculation manipulation ( $F=5.58$ ;  $df=1,84$ ;  $p<.05$ ), with inoculated subjects reporting more distraction than did non-inoculated subjects. Mean scores indicate that distracted subjects who had been inoculated were more distracted than those who had not been inoculated. Similarly, among subjects who saw the non-distracting film, subjects who had been inoculated reported more distraction.

Analysis of variance of Knowledge scores revealed a similar pattern. As measured by our items, distracted subjects learned significantly less of the message ( $F=17.22$ ;  $df=1,84$ ;  $p<.001$ ) and inoculated subjects learned significantly less of the message ( $F=4.23$ ;  $df=1,84$ ;  $p<.05$ ). As will be discussed more fully later, the results for both persuasion scores and knowledge scores are probably largely explained by the very powerful distraction effect. That is, the distraction manipulation appears to have been so strong that it resulted in message reception loss for distracted subjects. This may well have precluded any chance of testing the distraction hypothesis as first proposed by Festinger and Maccoby (1964).

Finally, analysis of variance of Speaker-persuasiveness scores revealed a main effect of distraction ( $F=10.51$ ;  $df=1,84$ ;  $p<.01$ ), a main

effect of inoculation ( $F=12.18$ ;  $df=1,84$ ;  $p<.001$ ), and an interaction between distraction and inoculation ( $F=5.25$ ;  $df=1,84$ ;  $p<.05$ ).

Examination of the means presented in Table 4 indicates that distracted subjects rejected the speaker more than did non-distracted subjects and that inoculated subjects rejected the speaker more than did non-inoculated subjects. Finally, the interaction between distraction and inoculation was due primarily to the much greater acceptance of the speaker manifested by non-distracted/non-inoculated subjects, the only group to perceive the speaker in a positive light.

Precisely the same series of analyses was computed for scores given by subjects who heard the message advocating charging tuition for public school education. Mean scores by experimental conditions for this issue are presented in Table 5.

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Insert Table 5 about here  
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As with the toothbrushing issue, analysis of variance of Persuasion scores on the tuition issue manifested a single main effect of inoculation ( $F=9.22$ ;  $df=1,96$ ;  $p<.05$ ), inoculated subjects showing more resistance to persuasion.

Again as with the toothbrushing issue, there were no significant effects when Counterargument-logic scores were submitted to analysis of variance. Unlike the toothbrushing issue, however, analysis of Counterargument-intensity scores revealed that distracted subjects were more intensely opposed to the message than were non-distracted subjects ( $F=6.58$ ;  $df=1,96$ ;  $p<.05$ ), a result directly counter to that which was expected.

With the tuition issue, as with the toothbrushing issue, subjects who participated in the distracted conditions reported being very much more distracted than those who served in the non-distracted conditions ( $F=147.16$ ;  $df=1,96$ ;  $p<.001$ ). And again the effect of distraction was apparent on Knowledge scores, with distracted subjects learning significantly less than did non-distracted subjects ( $F=24.03$ ;  $df=1,96$ ;  $p<.001$ ). This latter analysis also revealed a marginally significant interaction ( $F=2.85$ ;  $df=1,96$ ;  $p<.10$ ). Although the overall pattern of means suggests that inoculated subjects learn less than non-inoculated subjects, subjects in the inoculated/non-distracted condition learned more than those in the non-inoculated/non-distracted condition. This result, combined with the much lower Knowledge scores obtained from distracted/inoculated subjects produced the tendency toward interaction.

Finally, unlike the earlier analysis, there were no effects when Speaker-persuasiveness scores were submitted to analysis of variance. Although scores in Table 5 indicate that distracted subjects found the speaker to be less persuasive than did non-distracted subjects, the difference did not approach significance.

Post-analysis. Post-analyses were conducted in order to further clarify some of the relationships revealed by analyses of variance.

It has already been noted that the failure of the distraction manipulation to affect Persuasion scores may derive from a too powerful distraction manipulation. This possibility is supported not only by the large differences in perceived distraction reported by subjects in the distracted vs. the non-distracted groups, but also

by the significantly lower Knowledge scores produced by distracted subjects. Several researchers (Festinger & Maccoby, 1964; Osterhouse & Brock, 1970) have argued that to the extent that distraction decreases learning, then any gain due to interference with counterarguing may be more than offset by message reception loss. A crucial assumption here, of course, is that learning increases persuasion, that is, that people have to learn the arguments in a message in order to be persuaded by the message. Thus, the obtained learning differential may well have masked the effect of distraction on persuasion.

If this is an adequate explanation for the failure of distraction to increase yielding in this experiment, then: a) we should expect to find a correlation between Knowledge scores and Persuasion scores; and b) given such a correlation, an analysis of covariance in which the effect of learning is removed from Persuasion scores should reveal an effect of distraction on persuasion.

Table 6 presents the correlations among Inoculation, Distraction, Knowledge scores and Persuasion scores for both issues. While there was no correlation between Knowledge scores and Persuasion scores on the tuition issue, there was a significant relationship on the toothbrushing issue ( $r=.27$ ;  $z=2.45$ ;  $p<.05$ ). Since there was no relationship with the tuition message, analysis of covariance was inappropriate. Analysis of covariance was performed on scores resulting from the toothbrushing message. However, this analysis failed to unmask an effect of distraction on Persuasion scores. For this study, at least, it appears that greater knowledge did not lead

to greater persuasion.

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Insert Table 6 about here  
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This might well be a substantial blow to the distraction hypothesis were it not for the fact that a lack of relationship between learning and persuasion -- particularly when learning is measured via multiple choice tests -- is a rather frequent finding of attitude change experiments. Indeed, the lack of such relationships has led McGuire (1969) to characterize traditional learning theories of attitude change as "acquiring the status of a fertile error" (p. 266). In short, while the covariance analysis failed to reveal a distraction effect on Persuasion scores, this failure does not disprove the distraction hypothesis, even under the relatively low involvement conditions of this experiment, because of the possible insensitivity of the Knowledge measure.

Returning again to the analysis of variance results presented in the preceding sections, the obtained differential effect of distraction on perceptions of Speaker-persuasiveness may point to another explanation of the Persuasion score results.

Table 7 illustrates a strong relationship between distraction and perceived Speaker-persuasiveness for the toothbrushing message ( $r = -.35$ ;  $z = 3.27$ ;  $p < .002$ ), and a marginal relationship for the tuition issue ( $r = -.18$ ;  $z = 1.80$ ;  $p < .10$ ). For both issues the trend was for distracted subjects to perceive the speaker to be less persuasive than did non-distracted subjects. Moreover, for the toothbrushing issue, where the relationship was strong, there was also a strong relationship

between Speaker-persuasiveness and Persuasion scores ( $r=.46$ ;  $z=4.30$ ;  $p<.001$ ), while for the tuition issue, where the relationship was weak, so was the relationship between Speaker-persuasiveness and Persuasion scores. In other words, to the extent that distraction related to lower perceived Speaker-persuasiveness, perceived Speaker-persuasiveness appears to relate to persuasion.

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Insert Table 7 about here  
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Finally, it should be noted that correlations between Persuasion scores and both Counterargument-logic scores and Counterargument-intensity scores were computed for both issues. These coefficients indicate that when experimental conditions were disregarded, there was a strong relationship between counterarguing and yielding. That is, for the toothbrushing issue the correlation between Persuasion scores and Counterargument-logic scores was  $.28$  ( $z=2.60$ ;  $p<.01$ ); between Persuasion scores and Counterargument-intensity scores it was  $.19$  ( $z=1.14$ ;  $p<.05$ ). For the tuition issue, the correlation between Persuasion scores and Counterargument-logic scores was  $.44$  ( $z=4.40$ ;  $p<.001$ ); the correlation between Persuasion scores and Counterargument-intensity scores was  $.37$  ( $z=3.70$ ;  $p<.001$ ).

Recalling that both sets of counterarguing ranged from 5 (opposed) to 1 (in favor) and that lower Persuasion scores indicate more yielding, it is clear that there is a strong relationship between counterarguing behavior and resistance.

Summary and Discussion

Significant effects and trends created by distraction and inoculation are summarized below.

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not clear*

DISTRACTION

Significant Effects

Mean Trends

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Distraction made people counterargue with more intensity -- Tuition</li> <li>2. Distraction meant less knowledge -- Tuition and Toothbrushing</li> <li>3. Distraction made it difficult to concentrate on the film content -- Tuition and Toothbrushing</li> <li>4. Distraction made people perceive the speaker as not persuasive -- Toothbrushing</li> </ol> | <ol style="list-style-type: none"> <li>Distraction made people counterargue with more intensity -- Toothbrushing</li> <li></li> <li></li> <li>Distraction made people perceive the speaker as not persuasive -- Tuition</li> </ol> |
|--|--|

INOCULATION

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Inoculation made people less persuasible -- Tuition and Toothbrushing</li> <li>2. Inoculation meant less knowledge -- Toothbrushing</li> <li>3. Inoculation made it difficult to concentrate on the film content -- Toothbrushing</li> <li>4. Inoculation made people perceive the speaker as not persuasive -- Toothbrushing</li> </ol> | <ol style="list-style-type: none"> <li>Inoculation meant less knowledge -- Tuition</li> <li></li> <li></li> <li>Inoculation made people perceive the speaker as not persuasive -- Tuition</li> </ol> |
|--|--|

INTERESTING INTERACTIONS

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Distraction and inoculation meant the least learning -- Tuition</li> <li>2. Distraction and inoculation made people perceive the speaker as least persuasive -- Toothbrushing</li> </ol> | <ol style="list-style-type: none"> <li>Distraction and inoculation meant the least learning -- Toothbrushing</li> <li>Distraction and inoculation made people perceive the speaker as least persuasive -- Tuition</li> </ol> |
|--|--|

On the basis of these findings, and the correlations obtained in the post-analysis, several tentative conclusions may be drawn.

It is clear that an inoculation treatment increases resistance to persuasion even when subjects respond to an audio-visual rather than a written message. What is somewhat surprising, however, is the lack of relationship between the inoculation treatment and counterarguing scores. Most prior research on inoculation theory (cf. McGuire, 1964) rests on the assumption that inoculation mediates resistance because subjects employ the counterarguments obtained during the pre-message treatment. Although we found an overall relationship between counterarguing scores and resistance, we did not find the expected effect located by inoculation. Resistance was there, but counterarguing as indicated by our measures was not.

Two other findings relative to the inoculation manipulation may help partially to explain our results. On the toothbrushing issue, inoculation led to significantly lower perceptions of Speaker-persuasiveness and significantly lower Knowledge scores; on the tuition issue, the differences did not reach significance but the mean trends were in the same direction. One possibility indicated by these data is that the inoculation procedure so committed subjects to a position counter to the one advocated by the messages that they a) paid less attention to the message; b) engaged in more source derogation simply because the source was advocating a position they found untenable. That is, either the need to counterargue or the opportunity to counterargue may never have occurred.

Although our data do not allow a causal test of either

explanation, the fact that inoculation did not mediate differences in counterarguing scores, but did mediate differences on these two variables, indicates that further research should be done in this area.

Turning to the effects of the distraction manipulation, it is clear that the relationship between distraction, learning, and persuasion is complex. It appears that our distraction manipulation was too powerful to provide a legitimate test of the distraction hypothesis in that it strongly mediated against the learning which is a necessary pre-condition for the distraction effect to obtain. Indeed, it may have been so powerful that it not only decreased learning, but it also increased frustration to the point that reactivity was increased.

Since subjects were generally so near the end of the persuasion scales to begin with, such reactivity could not manifest itself in a "boomerang effect." There was no room to move away from the originally held position. However, the significant increase in both source derogation and counterarguing manifested by distracted subjects on the toothbrushing issue (and the means in that direction on the tuition issue) could well be the result of a "fight back at any cost" response on the part of subjects placed in a highly frustrating situation. And as scores on the measures of distraction indicate, attempting to attend to the message while viewing the particular visuals used in the study could well have been highly frustrating. If such a frustration explanation has any validity, then the only place subjects could manifest their reactions was on

the counterarguing and Speaker-persuasiveness measures, as was found.

A final point about the effect of distraction on perceptions of Speaker-persuasiveness is also worth noting. Because of the substitution of unrelated visuals in the distraction versions of both films, subjects in the distracted conditions saw very little of the speaker (only a brief, opening, "head" shot). Since a number of independent observers commented on the forcefulness of the speaker in the non-distraction version of the films, the effects located by distraction could be interpreted as straightforward source credibility effects. Subjects who were able to attend to the speaker simply may have been overpowered by him.

*Now  
you  
explain!*

Clearly, then, several of the results of combining the basic manipulations of inoculation and of distraction research were unexpected. Some of this may have been due to the "engineering" of the experiment, but some of it must also be attributed to the complexity of the relationships among the variables under investigation.

References

Festinger, L. and Maccoby, N. On resistance to persuasive communication. Journal of Abnormal and Social Psychology, 1964, 68, 359-366.

McGuire, W.J. Inducing resistance to persuasion: Some contemporary approaches. In L. Berkowitz (Ed.), Advances in Experimental Social Psychology, Vol. 1, New York: Academic Press, 1964, 191-229.

Osterhouse, R.A. and Brock, T.C. Distraction increases yielding to propaganda by inhibiting counterarguing. Journal of Personality and Social Psychology, 1970, 15, 344-358.

Footnotes

1. This research was conducted under a contract from the office of Naval Research, No. N00014-67-A-0112-0032 entitled "Some Basic Processes in Persuasion."
2. The Counterargument-logic score ranged from 5 (opposed to the speaker's position, quite logical arguments) to 1 (in favor of the speaker's position, quite logical arguments). The Counterargument-intensity score ranged from 5 (opposed to the speaker's position, strong feeling) to 1 (in favor of the speaker's position, strong feeling).

TABLE 1 Means, Standard Deviations, Factor Loadings, and Communalities of the Eight Attitude-toward-toothbrushing Items. \*

*What is range of scale? For what?*

*Means ↓ ↓ ?*

ATTITUDE ITEM	<del>X</del>	Standard Deviation	Factor Loading	Communality
1. How important is it to brush your teeth after every meal?	-.89	4.86	.68	.53
2. How effective is regular toothbrushing in preventing tooth decay?	-.29	5.13	.72	.53
3. Regular toothbrushing is likely to damage gums.	1.48	5.06	.76	.59
4. It's a good idea to brush your teeth after every meal, if at all possible.	1.19	5.76	.84	.72
5. Regular toothbrushing can improve the appearance of teeth but cannot prevent tooth decay.	-.36	5.33	.72	.59
6. Diseases of the gums and jaw are prevented by brushing three times a day.	-2.25	4.62	.47	.31
7. How effective is regular toothbrushing in preventing mouth odors?	.50	4.29	.39	.22
8. Effective control of tooth decay has nothing to do with toothbrushing.	.86	5.17	.75	.57

\* This analysis was based on responses from 122 subjects who responded to the "toothbrushing" questionnaire during session two. Some of these were not present during session one.

TABLE 2 Means, Standard Deviations, Factor Loadings, and Communalities of the Eight Attitude-toward-tuition Items. \*

ATTITUDE ITEM	$\bar{X}$	Standard Deviation	Factor Loading	Communality
1. How important is it to maintain a system of free high school education?	2.83	4.65	.56	.43
2. How effective is the present high school system in meeting the educational needs of today's youth?	-.09	3.75	.46	.36
3. Public high school education should continue to be free of tuition costs to students and their parents.	4.02	3.96	.73	.62
4. School costs should be paid by those who have children.	-.73	4.72	.27	.20
5. Widespread ignorance is prevented by the present system of tuition free high schools.	.38	4.58	.43	.22
6. How effective are high schools, as we know them today, in preparing students for post high school years?	.28	4.04	.51	.43
7. The free high school system limits the learning ability of pupils.	2.31	4.50	.51	.30
8. A free high school education continues to be the best way to educate today's youth.	2.48	3.98	.69	.50

\* This analysis was based on responses from 121 subjects who responded to the "tuition" questionnaire during session two. Some of these were not present during session one.

TABLE 3 Means, Standard Deviations, Unrotated and Rotated Factor Loadings, and Communalities of the Six Film Presentation and Speaker-persuasiveness Items (N=243).

ATTITUDE ITEM	$\bar{X}$	Standard Deviation	Unrotated Factor Loading	Rotated Factor Loading	Communality
1. How interesting was the film?	.25	4.29	.43	--	.24
2. How easy was it to follow the points that the speaker was making?	1.76	4.66	.58	.74*	.55
3. Did the visual presentation help or hinder your understanding of the speaker's points?	-1.16	4.53	.62	.73*	.56
4. How persuasive was the speaker?	-.83	4.42	.66	.62**	.49
5. How believable did the speaker make the message?	.42	4.50	.54	.64**	.43
6. How qualified was the speaker to discuss this topic?	.83	3.36	.27	--	.17

\*Loading on Factor I.

\*\*Loading on Factor II.

TABLE 4 Mean Scores by Experimental Condition Obtained on Six Measures Using the "Toothbrushing" Issue. \*

Dependent Variable	Inoculated		Not-Inoculated	
	Distracted	Not Distracted	Distracted	Not Distracted
N =	22	22	22	22
Attitude Score	1.86	1.05	-.45	-2.21
Counterargument-logic Score	4.23	4.23	4.14	3.68
Counterargument-intensity Score	3.77	3.59	4.00	3.73
Knowledge Score	-1.66	1.02	-.28	2.20
Distraction Score	1.32	-1.17	.72	-1.88
Speaker-persuasiveness Score	-.77	-.44	-.35	1.58

\* All scores have been transformed to z scores. Higher scores indicate "more" resistance to persuasion, more logical counterarguments, more intense counterarguments, more knowledge, more distraction, more speaker-persuasiveness.

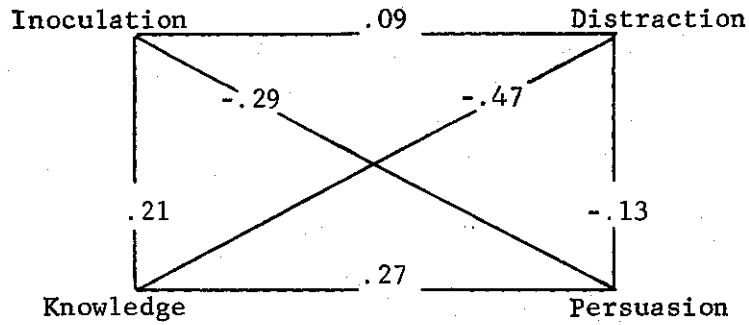
TABLE 5 Mean Scores by Experimental Condition Obtained on Six Measures Using the "Tuition" Film. \*

Dependent Variable	Inoculated		Not-Inoculated	
	Distracted	Not Distracted	Distracted	Not Distracted
N =	25	25	25	25
Persuasion score	.84	1.35	-.84	-1.04
Counterargument-logic score	4.16	4.28	4.20	4.04
Counterargument-intensity score	4.08	3.68	4.08	3.48
Knowledge score	-2.28	1.80	-.59	1.40
Distraction score	1.52	-1.45	1.42	-.94
Speaker-persuasiveness score	-.51	.04	-.25	.17

\* All scores have been transformed to z scores. Higher scores indicate "more" resistance to persuasion, more logical counterarguments, more intense counterarguments, more knowledge, more distraction, more speaker-persuasiveness.

Table 6 Correlations Among Inoculation, Distraction, Knowledge, and Attitude, Toothbrushing and Tuition Films.

TOOTHBRUSHING



TUITION

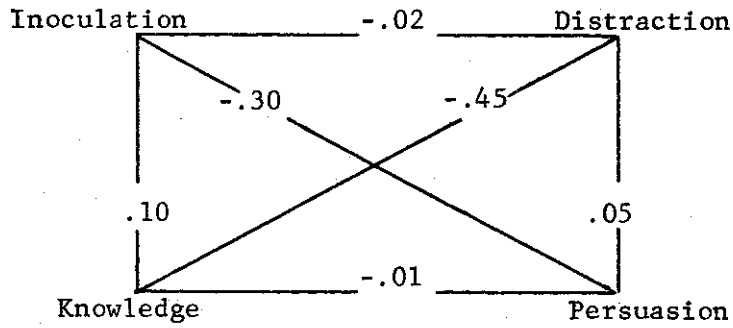
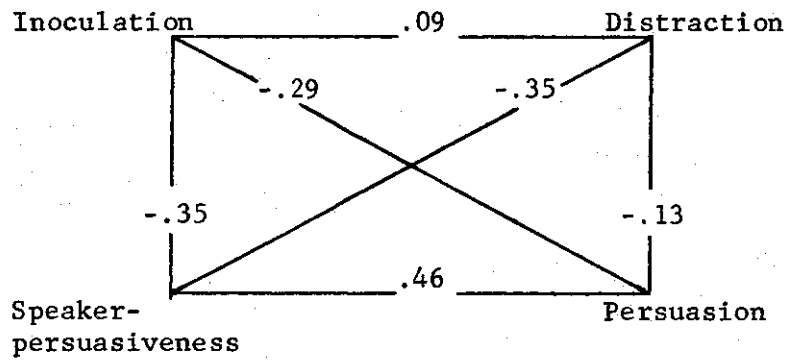


Table 7 Correlations Among Inoculation, Distraction, Speaker-persuasiveness, and Attitude, Toothbrushing and Tuition Films.

TOOTHBRUSHING



TUITION

