COMPARATIVE EFFECTS OF HOT AND COOL MEDIA AND MESSAGES BY LEVELS OF DOGMATISM

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PREFACE

Marshall McLuhan has won praise from some people and scorn from others. There have been many words about his words, and their rightness or wrongness, but there has been very little research specifically to test his theories on the effects of communication.

The author feels McLuhan's theories can do little good as long as they remain speculative. However, research can lend support and-or provide a foundation for refinement of his ideas. This exploratory study represents a small step toward all that needs to be investigated in McLuhan's writing. Hopefully, results of this research will provide some reliable guidelines for improving effectiveness in mass communication. The author also hopes that future research will build upon this foundation.

Many persons made significant contributions to this project. I am especially indebted to Dr. Walter J. Ward, director of graduate studies in mass communication at Oklahoma State University, for his assistance in the design, completion and reporting of this study. His greatest contribution was not in teaching one fact or another, but in teaching me how to learn.

I also thank Dr. Harry E. Heath, Jr., director of the Oklahoma State University School of Journalism and Broadcasting, for his assistance in the design and interpretation of this study. I am also grateful to Dr. Heath for my appointment as a graduate assistant in

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Thanks to the 120 subjects who unwittingly made their contribution to the advancement of communication research, and to their professors who generously made the classes available. They were Richard I. Wark, Jon R. Bond, Jerry L. Polinard and Franz A. VonSauer.

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CHAPTER I

INTRODUCTION

This study sought to add to current knowledge of the effects of communication by investigating one of the quasi-theories of Marshall McLuhan, author and head of the University of Toronto's Center for Culture and Technology.

The quasi-theory involved McLuhan's assertion that a hot message and a hot medium make one another more effective and that a cool message and a cool medium make one another more effective. The definitions of hot and cool are McLuhan's.

In studying the relative persuasive effectiveness of radio and television, as predicted by McLuhan, one needs to gain some background on his descriptions of media characteristics.[1] He speaks not only of media effects on individuals, but also on societies.

According to McLuhan, radio "tribalizes" by involving people in simultaneous experience. It also involves people in depth, as can be witnessed in youngsters doing their homework with a radio background, creating their own world apart from the TV world.

He tells us that radio explodes a hot tribalistic culture because the society is an extension of the family and radio provides mass experience, crossing family bounds. "For Africa, India, China and even Russia, radio is a profound archaic force, a time bond with the most ancient past."[2]

On the other hand, he says that radio implodes a cool culture. In a society based on individualist stress and not the family, radio tends to retribalize. However, the United States is so literate that our culture neutralizes the effects of radio.

McLuhan suggests that hot content is more effective on radio as evidenced by the Kennedy-Nixon debates. He reports that those who heard the debates on radio overwhelmingly agreed that Nixon won, a different opinion from the many who saw the debates on TV. McLuhan's analysis is that the cool TV made Nixon's "sharp, high definition image into the impression of a phoney."[3]

He also cites Franklin D. Roosevelt as an expert user of radio with his cool fireside chats. They were effective because FDR preceded them by heating up the press against him. This would suggest numerous combinations of hot and cool media and messages that could complement or neutralize one another.

In this research, the author was concerned with McLuhan's more general hypothesis that a hot message and a hot medium generally make one another more effective. With radio, the individual is responsible for filling in everything except the audio;. Therefore, the more auditory information we give him, the more persuasive we should be, if the media behaviors McLuhan describes are operating.

In contrast, television does not work as a background for homework; it engages the viewer. In McLuhan's description, TV is not primarily visual, it is tactile...the viewer is the screen...he is bombarded with light impulses. The image is visually low in data. McLuhan says, "It is not a photo in any sense, but a ceaselessly forming contour."[4] "The TV image offers some three million dots per second

to the receiver. From those, he accepts only a few dozen each instant from which to make an image."[5]

He says, "When hotted up by dramatization and stingers, TV performs less well because there is less opportunity for [viewer] participation."[6]

McLuhan contends that TV rejects the sharp personality and favors presentation of processes, not products. "Anybody whose appearance strongly declares his role and status in life is wrong for TV."[7] He cites John Kennedy as a good TV personality, saying Kennedy could have been "...anything from a grocer to a professor to a football coach. He was not too precise or too ready of speech in such a way as to spoil his pleasantly tweedy blur of countenance and outline."[8]

Again, if McLuhan's predictions of media behavior are operating we can expect TV to persuade less effectively with hotter content, as the individual is allowed less participation than with cooler content.

Very little research on McLuhan has reached the public. While previous communication research does not use McLuhan's theories as a framework, there has been some reliable and relevant investigation of the relative effectiveness of various media.

Carl I. Hovland's Communication and Persuasion, for example, relates considerable comprehensive and sound research.[9] Hovland doesn't explore the relative effects of media in depth. He simply says that active participation, such as a role taking, facilitates persuasion. This would suggest that a cool, participant medium generally would be more persuasive than a hot one. But the research cited by Hovland has little to do with learning to make use of the electronic media. In fact, it is almost entirely concerned with the little-disputed super-

iority of personal contact over the mass media, and with the well-supported belief that role-playing increases the probability of an individual's opinion being changed in the future.

Joseph T. Klapper's The Effects of Mass Communication gives a more current view of the research. At the outset he qualifies the data by saying, "...the relative powers of the media differ markedly from one persuasive task to another."[10] Our knowledge on the subject, indeed, is incomplete.

Klapper says, "Wilkie (1934), Knower (1935, 1936) and Cantril and Allport (1935) lend their support to the opinion that personal address (lecture) is superior in persuasive power to mechanical aural appeal (radio), which is superior to printed appeal."[11] He adds that, in these studies, all variables were held constant except the medium, and we can't expect them to operate the same way in the field.

But the same phenomena were found in the Erie County, Ohio field panel studies of the 1940 election by Lazarsfeld, Berelson and Gaudet.[12] These studies generally upheld the laboratory results. Informal personal communication exceeded radio, which exceeded print in affecting voting behavior.

An exhaustive study by Katz and Lazarsfeld in 1955 concluded that personal influence is generally superior in producing opinion change, but the other media vary too much among issues, etc., to generalize about their relative effects.[13] Klapper said, "If personal involvement is really critical, television might be expected to be more persuasive than radio, and second only to personal influence. Oddly enough, no studies of the relative persuasive efficiency of radio and TV have reached the public domain."[14]

An Overview of McLuhan's Theories

In this study, the reader is offered some insight into McLuhan's notions.

McLuhan's best known proposition is that the medium is the message..."it is the media that control and shape the scale and form of human association and action."[15] He includes such things as clothing and cars in his definition of media, adding that many media go unnoticed with respect to their ability to change the influence of space and time on human associations.

Exemplifying new media, McLuhan cites the electric light as "pure information."[16] He says the electric light is a medium without a message, without content. The activities the light facilitates, from night baseball to brain surgery, are its content, and those activities would not exist in the same way without it.

Rounding out this new media notion, he says every medium has as its content another medium.[17] The content of writing is speech; the content of print is writing; of telegraphy is print; of speech is the thought process.

McLuhan refers to our prehistoric ancestors as "ear men,"[18] They depended on a combination of their senses, especially their ears and eyes, for day-to-day survival. Conversely, McLuhan calls modern man an "eye man," indicating that we have been trained to focus on one sensory perception to the exclusion of our other senses. An often-repeated McLuhan theme is that this focusing phenomenon is largely the product of the machine age and printed literature. Because of print we have been trained to seclude ourselves from social contact and to

focus our attention on visual perception of the printed word.

Now, says McLuhan, we are in a reverse trend, becoming more sensual and less fragmented in our social roles...largely as a result of electronics, we are moving from mechanization to automation, from sequence to simultaneous, from linearity to configuration, from fragmentation to centralization.[19] We are also moving toward the cool media, he says.

The basic difference between hot and cool media or technology, as defined by McLuhan, is the difference between high definition and low definition, between excluding and including the audience.[20]

The hot medium is complete, explicit, full of information, and encourages the viewer to accept it passively. It extends one sense in high definition. The cool medium is implicit, incomplete, and invites the audience to fill in, to participate. It extends several senses in low definition. He refers to previous investigation of the psychology of perception, saying, "The hotting-up of one sense tends to effect hypnosis, and the cooling of all senses tends to result in hallucination."[21]

According to these criteria for classification, hieroglyphics are cool, but the phonetic alphabet and typography are hot. Movies are hot; a movie has a high definition visual image and a film is complete within itself. Television is cool; it has a vague visual image and is an ongoing process from one show to another and from week to week. Note the difference in perception when we go to a movie theatre to see John Wayne but we tune in the television to Mr. Dillon.

While the printed word is hot, McLuhan says paperback books are cool version of printing. The paperback is not only visual, but also

tactile...it can be carried in the hand, pocket or purse and read handily almost anywhere.

To McLuhan, such things as the source of a communication, its medium, and certain considerations of its content are messages in themselves. Clarifying his view of the importance of the new media he says, "We are back in acoustic space...we are beginning to restructure the primordial feelings and emotions from which 3000 years of literacy divorced us."[22] Here he is saying that the book, the first product of mass production, isolated the reader in silence, and thus fragmented cultures. Now there is a reversal. "The metropolis is a classroom. This is a view that upsets and repulses teachers but is very acceptable to students."[23]

Approaching the Problem

Interwoven with McLuhan's ideas of hot and cool media, technologies and cultures, is frequent allusion to their most effective uses. He says there is little sense in talking about medium and content as operating independently, since the medium itself is a message.[24] Critics of television violence, he says, assume that the program content is a motivator, while actually the medium is more of a source of effects. "Their current assumption that content of programming is the factor that influences outlook and action is derived from the book medium with its sharp cleavage between form and content."[25]

However, he says that content can make the medium more or less effective. "The success of any TV performer depends on his achieving a low-pressure style of presentation," because TV is a cool medium.[26] Jack Paar was one of the first successful exploiters of the new

medium's grammar with his low-key talk show. In fact, Richard Nixon's appearance on the show cooled him off considerably, according to McLuhan. He says Nixon is a hot personality...a "slick, glib" lawyer. But Paar had him play the piano on the show, making him appear as a shy artist, and thus inviting the audience to fill in his personality more.

McLuhan's major reference to hotter content making a hot medium more effective involves research "done in Toronto a few years back." Unfortunately, he gives us neither the date nor the researchers. But the purposes were adapted for use in this experiment.

Of the Toronto research he says:

> In a group of simulcasts of several media done in Toronto a few years back, TV did a stange flip. Four randomized groups of university students were given the same information at the same time about the structure of preliterate languages. One group received it via radio, one from TV, one by lecture, and one read it. For all but the reader group the information was passed along in straight verbal flow by the same speaker without discussion or questions or use of a blackboard. Each group had one half an hour exposure to the material. Each was asked to fill in the same quiz afterward. It was quite a surprise to the experimenters when the students performed better with TV-channeled information and with radio than they did with lecture and print...and the TV group stood <u>well</u> above the radio group. Since nothing had been done to give special stress to any of these four media, the experiment was repeated with other randomized groups. This time each medium was allowed full opportunity to do its stuff. For radio and TV, the material was dramatized with many auditory and visual features. The lecturer took full advantage of the blackboard and class discussion. The print form was embellished with an imaginative use of typography and page layout to stress each point in the lecture. All of these media had been stepped up to high intensity for this repeat of the original performance. TV and radio once again showed results high above lecture and print. Unexpectedly to the testers, however, radio now stood signigicantly above television...TV is a cool participant medium. When hotted up by dramatization and stingers, it performs less well because there is less opportunity for participation. Radio is a hot medium. When given additional intensity, it performs better. It doesn't invite the same degree of participation in its users.[27]

In this experiment, the author replicated the Toronto design as closely as possible, given the above information, and with some changes. The author was concerned here with the relative effects of media, but only as they relate to the McLuhan theory of cool messages making cool media more effective and hot messages making hot media more effective. Since the phonomena under consideration were most obvious in the broadcast media, the author tested hot and cool content as they operate for radio and television. For any other combination of broadcast, print and lecture, absolute changes in effectiveness were expected after changing content, but the rank-order of the various media's effectiveness were expected to remain stable. The broadcast media were expected to yield more dramatic results, as they changed rank in the Toronto experiment.

This study was limited to two media for sake of plausibility, because another dimension of communication effectiveness related to McLuhan's theory was considered. That dimension is the possibility that different personality types are affected differently by various media.

Given that hot and cool media do exist and operate to exclude and include the audience, it seemed possible there also exist personality types that are differentially persuaded by hot and cool media. More specifically, a person who holds an inordinate respect for authority was expected to be persuaded more by a hot medium, which talks <u>at</u> him. Conversely, a more autonomous person was expected to be more persuaded by a cool medium, which calls for his participation.

In classifying subjects to study this "logic", the author turned to Milton Rokeach and his theories of the dogmatic, or close-minded,

personalities.[28] His theory of the open and closed mind is an alternative to Adorno's Authoritarian personality, which was designed to measure only politically right, or fascistic, tendencies.[29] Rokeach's dogmatism scale measures ideological dogmatism, which refers to a closed way of thinking associated with any ideology, regardless of content. He notes that the open and closed minds are not rigid classes, but extremes along a continuum.

According to Rokeach, all belief-disbelief systems serve two powerful and conflicting sets of motives at the same time...the need for a cognitive framework and the need to ward off threatening aspects of reality. Preoccupations with cognitions, experiential and factual data characterize the open system. As concern for threat becomes greater, the system becomes more closed and cognitions become less important. Thus, the person with a closed system looks more to instruct and to be instructed than to make decisions. He has an "authoritarian" outlook on life, an intolerance toward those with opposing beliefs and a sufferance of those with similar beliefs.

Rokeach's typing gave reason to expect open- and close-minded persons would respond differently to hot and cool media. The close-minded or highly dogmatic individual probably would be persuaded more by hot messages and hot media than by cool messages and media. Also, the highly dogmatic person probably would be persuaded more than the low dogmatic individual by hot media and messages. Conversely, cool media and messages probably would persuade the low dogmatic person more than would the hot media and messages. The cool media and messages probably would persuade the low dogmatic person more than would they persuade the high dogmatic person.

In summary, the author tested a quasi-theory that McLuhan reiterates throughout his writing: a hot message and a hot medium make one another more effective and a cool message and a cool medium make one another more effective. A third dimension in the experiment was the relative effects of hot and cool media and messages on open and closed minded persons, as typed by Rokeach's Dogmatism scale. Effectiveness was measured by amount of opinion change registered on a question inserted within the Dogmatism Scale for the pre-test and within the questionnaire for the post-test.

Interpreting McLuhan

McLuhan has said of his own work, "I don't pretend to understand it. After all, my stuff is very difficult."[30] The reason his "stuff" is so difficult to understand is partly that McLuhan is more an explorer than a scientist...he throws out feelers, speculation, and then watches where they land. As he says, "...my books constitute the process rather than the completed product of discovery."[31]

A great part of the problem of deciphering McLuhan is the frequent appearance of what appear to be contradictions in his writing. As an example, this research was based on his assertion that some combinations of hot and cool media and messages are more effective than others. But he has also said, "The content or message of any particular medium has about as much importance as the stenciling on the casing of an atomic bomb," and, "Societies have always been shaped more by the nature of the media with which men communicate than by the content of the communication."[32] The key to understanding these seeming antitheses is to realize that McLuhan is speaking on two different levels.

On a level comparing two different messages delivered by the same medium, he draws conclusions about their different effects on individuals. On a more general level, he emphasizes the effects of different media over time on societies. The two types of effects are not mutually exclusive. Both phenomena can be observed. The apparent contradiction appears because McLuhan overstates his case about societal effects of media, without synthesizing conclusions about the interaction of the two theories. This investigator has not found such a synthesis of these ideas in McLuhan's writing. Only in an interivew, prompted by the interviewer, did McLuhan explain, "By stressing that the medium is the message rather than the content, I'm not suggesting that content plays no role...merely that it plays a distinctly subordinate role."[33]

From a research standpoint, we might say McLuhan is long on theories and examples, but short on operational definitions.

Therefore, the author should qualify his conclusions, saying the methodology for this research is based on one individual's interpretation of McLuhan's theories. The best example of this is in the planning of the TV tapes. McLuhan does not tell us how to construct hot and cool TV messages. But after much consultation and study, this researcher capsulized McLuhan's observations, descriptions and examples to arrive at criteria for constructing the messages. It is believed that characteristics of the message that are hot are structured, anticipated and predictable, while those that are cool are unstructured, surprising, and unpredictable.

These criteria, of course, still are open to broad interpretation. For example, this researcher believed that a doctor picking up a card and standing it on an easel is cooler, more unstructured, than the

unannounced electronic appearance of the same card on the screen as a slide, which is admittedly surprising. It is believed that the surprising element here becomes less important than the electronic structuring.

Unless McLuhan states his theories more explicitly, researchers will be restricted to this individual interpretation in planning methodology to test his theories.

Hypotheses

The hypotheses were the following:

H_1: that radio will cause more opinion change with a hot message than with a cool message;

H_2: that television will cause more opinion change with a cool message than with a hot one;

H_3: that TV will cause more opinion change than radio when both use a cool message;

H_4: that radio will cause more opinion change than TV when both use a hot message;

H_5: that close-minded persons will have more opinion change with a hot message on radio than with any other combination;

H_6: that open-minded persons will have more opinion change with a cool message on TV than with any other combination;

H_7: that close-minded persons will have more opinion change with a hot medium than with a cool medium;

H_8: that open-minded persons will have more opinion change with a cool medium than with a hot medium;

H_9: that close-minded persons will have more opinion change with

a hot message than with a cool message;

H_{10}: that open-minded persons will have more opinion change with a cool message than with a hot message.

FOOTNOTES

[1]Marshall H. McLuhan, Understanding Media, (New York, 1969), pp. 237-297.

[2]Ibid., p. 311.

[3]Ibid., p. 243.

[4]Ibid., p. 311.

[5]Ibid., p. 311.

[6]Ibid., p. 252.

[7]Ibid., p. 274.

[8]Ibid., p. 274.

[9]Carl I. Hovland, Communication and Persuasion, (Yale University, 1953), p. 37.

[10]Joseph T. Klapper, The Effects of Mass Communication, (Glencoe, Illinois, 1960), pp. 106-107.

[11]Ibid., p. 106.

[12]Ibid., P. 107.

[13]Ibid., p. 106.

[14]Ibid., p. 107.

[15]McLuhan, p. 9.

[16]Ibid., p. 9.

[17]Ibid., p. 8

[18]Gerald E. Stearn, ed., McLuhan: Hot and Cool, (New York, 1969), p. 144.

[19]McLuhan, p. 33-40.

[20]Ibid., p. 22.

[21]Ibid., p. 32.

[22]Stearn, p. 117.

[23]Ibid., p. 117.

[24]McLuhan, p. 314.

[25]Ibid., p. 314.

[26]Ibid., p. 310.

[27]Ibid., p. 311.

[28]Milton Rokeach, The Open and Closed Mind, (New York, 1960), p. 147.

[29]T.H. Adorno, The Authoritarian Personality, (New York,1950), p.97.

[30]"Playboy Interivew: Marshall McLuhan", Playboy, (March, 1969), p. 53.

[31]Ibid., p. 54.

[32]Ibid., p. 56.

[33]Ibid., p. 61.

CHAPTER II

DESIGN, METHODOLOGY AND ANALYSIS

This study sought to discover any differential effects of two different message treatments - carried through two different mass media channels - on the attitudes of persons representing three different levels of dogmatism.

In this treatment x treatment x levels-of-persons design, the two manipulated independent variables comprised media channels of radio and television and hot and cool message treatments. Three levels of the assigned independent variable - Dogmatism - were high, medium and low dogmatic respondents.

The 2x2x3 analysis paradigm juxtaposed the three variables into a 12-fold scheme of independences. Thus, the author could test main effects between levels of the three variables and detect the differential or interactive effects of those levels to test the hypotheses on pages thirteen and fourteen.

Messages

The messages, which appear in Appendix B, dealt with the probability of medical science finding a cure for the common cold. The topic was one of general interest, but not ego-involved enough to have represented a firm cognitive object to the subjects.

Messages were made cool and hot, not by the information they contained about the common cold, but by the way in which the information was presented. McLuhan tells us that, generally, lecture is hot and seminar is cool; so these settings were used.[1] All four messages presented the same information in the same order.

A major question to be resolved was whether the messages should present a positive or negative viewpoint. To provide some guide for deciding, the author asked a non-random sample of 25 students, "Will medical science find a cure for the common cold in the near future?" Their answers spread along a seven-point scale from "definitely will not" to "definitely will", averaging 4.0. The author assumed that approximately the same response would be found in a similar test of all the subjects for this research.

As an example, if the result of this pilot study was an average of 6.0, with 7.0 being "definitely will", then one could expect to create more opinion change by presenting a negative message. However, since a neutral 4.0 average was obtained, one could expect to achieve equally dramatic change with either a positive or negative message. The author arbitrarily took the positive viewpoint, saying, "Yes, medical science will find a cure for the common cold in the near future."

Media

The hot radio used the straight lecture, delivered by an assistant introduced as a well-known M.D. and medical researcher. The cool radio message comprised a seminar, including the same "doctor" and several students.

The hot TV message used the same "doctor" as a lecturer, standing at a lecturn. The cool TV message used the same "doctor", again in a seminar with the same students.

Both TV messages used the same five visuals, including charts, graphs and microscopic photographs. They were displayed so as to accentuate the hotness and coolness of the presentations.

During the hot TV lecture, when the "doctor" came to a point to be illustrated, the picture simply cut to the visual without being alluded to in the speech. This unexpected flash might seem cool because it required the viewer's close attention. If there were a series of quick cuts, the effect would be cool. However, in this case the cuts to the visual lasted for about one minute, then back to the "doctor." There really was nothing that particularly drew the viewer's attention. In fact, the cuts made the entire program very structured. They took away any semblance of extemporaneousness, and tended to dehumanize the "doctor." He became something of a machine, fitting nicely into the production schedule.

On the other hand, the cool TV seminar played up the "doctor's" personality. He was seated with the students. The visuals were on large cards. When he came to the proper place in the seminar he took a visual from the stack and placed it on an easel beside his chair. He introduced each one saying something like, "Look at this chart...." This format made the "doctor" seem more human, seated with the students and showing his visual aids as they seemed appropriate to him, rather than as cued for the control room.

The sound tracks were lifted from the two TV tapes and used for the radio messages. Note that this added a very cool note to the cool

radio tape, the inclusion of the "look at this chart" introductions, when there was of course nothing to look at. This called on the viewer's imagination, involving the senses more, making a cooler message.

The lecture was delivered from notes. In the seminar, the "doctor" gave some opening remarks, and from that time on, his comments were all in answer to the students' questions.

Respondents

The respondents were students in basic political science and basic psychology classes at Oklahoma State University. It was impossible to select classes at random, because of the great number of instructors who were unable or unwilling to give their class time to research. It proved unfeasible for the author to select individual students at random from the entire Oklahoma State University student body. Therefore, the author used available classes. Both basic political science and basic psychology are general studies courses in which most Oklahoma State University students enroll. The four classes used in this research yielded a sample diverse in age, class standing, home town and major course of study.

Procedure

Eleven groups received the treatments during the same week, and one group was tested two weeks later. There was no major news during that time concerning cold cures, so there was no reason to assume any historical or maturation effects.

The 120 respondents were given the Rokeach Dogmatism Scale, Form E, comprising 40 items. A 41st item was added, stating, "Medical science will probably find a cure for the common cold within the next year or two." This was the pre-measure for the experiment. The dependent variable was the subjects' responses on a 6-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." The 6-point scale minimized neutral mid-point choices. The procedure for this research was adapted from that used by Hovland and Weiss in their study of source credibility.[2]

The Dogmatism Scale, which appears in Appendix A, was administered by the regular class instructors. They gave no special instructions or information other than representing the test as a general survey being made by the National Opinion Survey Council. The instructions given with the scale were the same as those used by Hovland and Weiss for their pre-measure. The subjects' dogmatism scores appear in Appendix D.

To prevent respondents from associating the pre-measure with the treatment and post-measure, the author administered the treatment and post-measure without reference to the instructor's presentation of the pre-measure. The author's remarks constituted the instructions for the experiment:

> My name is Joe Johnston. I'm a graduate student in journalism. Several weeks ago Professor _____ asked me to meet with you this morning to talk about the psychology of communication. This is certainly an interesting topic, since so many of our beliefs and opinions are formed not by actual experience, but by what we see and hear in the mass media. I told Mr. _____ that I thought the best way to study communication was to do an experiment with live data. So, what we're going to do today is study the effect of radio/TV listening/watching. We'll do our experiment, then I'll come back to a

later class period to discuss the results with you.

I'd like for you to listen/watch closely to this tape. It lasts about 11 minutes. Then I have a short questionnaire for you to fill out.

The tape was presented. Then the questionnaire, which appears in Appendix C, was handed out. It contained several questions about the tape's content, but the question used in analysis was the same one added to the Dogmatism Scale: "Will medical science find a cure for the common cold within the next year or two?"

The respondents were not asked to write their names on either questionnaire. Both questionnaires did, however, ask for several demographic items such as age, home town, etc., and an individual's two tests were matched, using that information.

The four message treatments were randomly assigned to the four classes.

Analysis

Dogmatism scores were computed for all respondents. Then respondents were randomly de-selected from the three larger classes to reduce them to the same size as the smallest class, which comprised thirty persons. Each class was then divided into high, medium and low dogmatic sub-groups by simply placing the scales for each class in order by scores and counting them into groups of ten. What this means, then, is that responses of 12 treatment groups of 10 persons each as listed below, were analyzed.

(1) High dogmatic, hot message, radio

(2) Medium dogmatic, hot message, radio

(3) Low dogmatic, hot message, radio

(4) High dogmatic, cool message, radio

(5) Medium dogmatic, cool message, radio

(6) Low dogmatic, cool message, radio

(7) High dogmatic, hot message, television

(8) Medium dogmatic, hot message, television

(9) Low dogmatic, hot message, television

(10) High dogmatic, cool message, television

(11) Medium dogmatic, cool message, television

(12) Low dogmatic, cool message, television

Each individual's pre-score on the cold cure question was subtracted from his post score to yield a difference score that was used in the three-factor analysis of variance. The subjects' scores are shown in Appendix E. Level of significance was set at $p < .05$. The design called for the analysis paradigm shown in Table I, complete with mean difference in agreement scores for each of 12 groups of respondents.

TABLE I

ANALYSIS OF VARIANCE PARADIGM SHOWING THE MEAN DIFFERENCE IN ATTITUDE SCORES FOR EACH OF 12 GROUPS OF RESPONDENTS

	Medium				
	Radio		Television		
	Message				
	Hot	Cool	Hot	Cool	Means
High	.10	-.10	.60	.70	.325
Medium	1.40	1.70	-.40	-.10	.650
Low	1.50	0	-.20	1.20	.625
Means	1.0	.53	0.0	.60	

FOOTNOTES

[1]Marshall H. McLuhan, Understanding Media, (New York, 1964), p. 23.

[2]Carl I. Hovland and Walter Weiss, "The Influence of Source Credibility on Communication Effectiveness," Public Opinion and Propaganda, (New York, 1954), pp. 337-347.

CHAPTER III

FINDINGS

All hypotheses for this experiment were based on presumed interactions of the independent variables. McLuhan's theories suggested that hot and cool messages would affect audiences differently via different media. The author's theory suggested that different types of individuals would respond differently to different messages and to different media. Thus, the hypotheses predicted that the variance observed in individuals' opinion change would be explained by the effects of various combinations of media, messages and types of respondents. This implies a prediction that the main effects, media alone, messages alone, and types of respondents alone, would not produce significantly different opinion change. The analysis of variance supported that implication. The main effects between types of media, messages and persons, all yielded non-significant F-ratios, as shown in Table II.

The F-ratios indicate whether the differences observed among the media, the messages and the groups of subjects could have occurred by chance. All the F-ratios except the one for the types of persons x media interaction were not significant. The non-significant findings indicate that the variance being tested could have occurred by chance fluctuation more than 5 times in 100. The significant finding for types of persons x media indicates that the variance contributed

by the interplay of media and types of respondents could have occurred by chance less than five times in 100.

TABLE II

ANALYSIS OF VARIANCE F-RATIO TABLE

Source	df	ss	ms	F	P
Between Types of Persons	2	2.67	1.34	0.38	n.s.
Between Media Channels	1	6.74	6.74	1.89	n.s.
Between Messages	1	0.14	0.14	0.03	n.s.
Types x Media	2	30.46	15.23	4.29	.05
Types x Messages	2	0.76	0.38	0.11	n.s.
Media x Messages	1	8.32	8.32	2.34	n.s.
Types x Media x Messages	2	12.98	6.49	1.83	n.s.
Within	108	383.80	3.55		
Total	119	445.87			

The pre-scores for the four groups appeared to vary widely. The four total pre-measure scores were 80,99,110, and 113. However, a t-test revealed that the observed pre-score difference could have occurred by chance more than five times in 100. The mean dogmatism scores for the four groups also appeared to vary widely. The four means were 144,146, and 147, and 157. However, a t-test also revealed that these differences could have occurred by chance more than five times in one hundred. We can assume that the four groups were equal on their pre-measure scores and their dogmatism scores. These tests supported the assumption that the four classes approximated a random

sample. Therefore, the author can speak about the findings with increased confidence, even though subjects were not drawn at random.

T-tests were also used to compare the high, medium and low dogmatism groups' dogmatism scores. Comparing high and medium scores, $t = 4.6$, and comparing medium and low scores, $t = 5.4$. Both these t's were significant at the .01 level, meaning the differences among the three groups could have occurred by chance less than one time in one hundred. Therefore, the three groups can be considered as having been drawn from three distinctly different populations, persons with high dogmatism scores, persons with medium dogmatism scores and persons with low dogmatism scores.

Differences Between Groups

The non-significant F-ratio between media indicates that the differences between the opinion change created by radio and the opinion change created by TV could have occurred by chance more than five times in 100. This means that neither medium generally was more effective than the other in producing opinion change.

The non-significant F-ratio between messages indicates that the differences between the opinion change created by hot treatment and the opinion change created by cool treatment could have occurred by chance more than five times in 100. This means that neither message treatment was more effective in creating opinion change.

The non-significant F-ratio between Types indicates that the differences between the opinion change created in high, medium and low dogmatic persons could have occurred by chance more than five

times in 100. This means that no one of the three types was more or less susceptible to opinion change than any of the others.

Combined Effects

Hypotheses H_1, H_2, H_3 and H_4 were tested by the F-ratio for the interaction media x messages. The F-ratio was non-significant, so these four hypotheses were not supported. The hypotheses were:

H_1: that radio will cause more opinion change with a hot message than with a cool message;

H_2: that television will cause more opinion change with a cool message than with a hot one;

H_3: that TV will cause more opinion change than radio when both use a cool message;

H_4: that radio will cause more opinion change than TV when both use a hot message.

This means that the effectiveness of the two media in creating opinion change was not affected by whether they used a hot or a cool message treatment. These four hypotheses were derived from the main McLuhan theory that was being tested, the assertion that a hot message and a hot medium make one another more effective and that a cool message and a cool medium make one another more effective. This theory was not supported.

Hypotheses H_5 and H_6 were tested by the F-ratio for the three-way interaction types x media x messages. The F-ratio was non-significant. The hypotheses were:

H_5: that close-minded persons will have more opinion change with a hot message on radio than with any other combination;

H_6: that open-minded persons will have more opinion change with a cool message on TV than with any other combination.

This means no single combination of medium, message and type of respondent was any more effective than any other in creating opinion change. The hypotheses were not supported.

Hypotheses H_7 and H_8 were tested by the F-ratio for the interaction dogmatism x media. The hypotheses were:

H_7: that close-minded persons will have more opinion change with a hot medium than with a cool medium;

H_8: that open-minded persons will have more opinion change with a cool medium than with a hot medium.

This F-ratio was significant at the .05 level, indicating that the observed differences could have occurred by chance less than five times in 100. In other words, something other than chance was operating here to produce differences in opinion change among the experimental groups. That "something other than chance" was the interplay of media and types of respondents. From this, we know that at least one combination of respondent type and media creates more opinion change than other combinations.

The data in Table III shows which combinations were more effective. Hypothesis H_7 predicted that close-minded (high dogmatic) persons would have more opinion change with the hot medium, radio. But the data shows that close-minded persons had far more opinion change with the cool medium, TV. Hypothesis H_8 predicted that open-minded (low dogmatic) persons would have more opinion change with a cool medium. But the data shows that open-minded persons had slightly more opinion change with the hot medium, radio. Both hypotheses, H_7

and H_8, were not supported. There was a significant interactive effect, but not in the direction predicted by the hypotheses.

TABLE III

MEAN DIFFERENCE-IN-OPINION SCORES SHOWING INTERACTION OF MEDIA CHANNELS AND TYPES OF RESPONDENTS

	Radio	Television	Mean
High	0	.65	.32
Medium	1.55	-.25	.65
Low	.75	.50	.62
Mean	.75	.45	.53

The interactive effects, shown in Table IV, provide further analysis. The greatest contribution to interaction is from the combination of medium dogmatism and TV. Again referring to Table III, this combination caused a relatively high amount of negative opinion change. Medium dogmatism and radio contributed much interaction with considerable positive opinion change. The combination of low dogmatism and radio caused somewhat more opinion change than the combination of low dogmatism and TV, However, the interactive effects of these two combinations were relatively small. This would seem to indicate that radio was generally more effective in producing opinion change in medium and low dogmatic persons. However, the findings do not necessarily lend support to the belief that the lower a person's

dogmatism score, the better he is persuaded by radio. Indeed, it appears that as dogmatism scores get farther below average, radio gets less effective and TV gets more effective.

TABLE IV

INTERACTIVE EFFECTS: MEDIA X DOGMATISM

	Radio	TV
High	-.54	.41
Medium	.68	-.82
Low	-.09	-.04

On the other hand, the high dogmatic subjects were much better persuaded by TV than by radio. The combination of high dogmatism and TV contributed much to the interaction, as did the combination of radio and high dogmatism, which produced no mean opinion change.

Note that all positive opinion change for high and medium dogmatic persons lay in only one medium, while both media had considerable positive opinion change on low dogmatic persons. Significant variance in one direction for high dogmatic persons does not necessarily imply a significant variance in an opposite direction for low dogmatic persons nor no variance for medium dogmatic persons.

Hypotheses H_9 and H_{10} were tested by the F-ratio for the inter-

action types x message. The F-ratio is non-significant. The hypotheses were:

H_9: that close-minded persons will have more opinion change with a hot message than with a cool message;

H_{10}: that open-minded persons will have more opinion change with a cool message than with a hot message.

This means that no combination of respondent type and message was more effective in creating opinion change than any other.

The analysis of variance yielded a very large WITHIN variance. This means that most of the variance appearing in the study was attributed to the differences among individual respondents, rather than to the effects of the independent variables.

Rokeach's Findings: A Comparison

To help determine the generalizability of the findings, the author compared the dogmatism scores in this study with the Form E dogmatism scores obtained by Rokeach.

Table V shows the data used in the analysis. The Rokeach scores were obtained from various groups of students at Ohio State University.[1] Rokeach's results from the various groups are very similar, and all his mean scores and standard deviations are similar to the ones obtained in this study.

The mean of the Rokeach means is 142.5. The author used this as the basis for selecting the first group listed, with 22 subjects, a mean of 142.6, and a standard deviation of 27.6 as representatives for analysis.

A t-test was performed on this group's mean and the mean of the

of the Oklahoma State University group. In the test, $t = 0.3$, and it was found to be not significant.

TABLE V

COMPARISON OF DOGMATISM SCORES WITH THOSE OBTAINED BY ROKEACH

	Subjects	Mean	S.D.
Oklahoma State University Subjects	120	144	25.4
Rokeach's Ohio State University Subjects	22	142.6	27.6
	28	143.8	22.1
	21	142.6	23.3
	29	141.5	27.8
	58	141.3	28.2
	retest	143.2	27.9

This finding indicates that any variance observed between the two groups could have occurred by chance more than 5 times in 100. The two groups are similar, and could have been chosen at random from the same population.

This means Rokeach would have approved of the sample used in this experiment. The things he says about high and low dogmatic personality types can be applied to the subjects in this study. Therefore, conclusions drawn from the findings of this experiment can be based on Rokeach's descriptions of personality types.

FOOTNOTES

[1]Milton Rokeach, The Open and Closed Mind, (New York, 1960), p. 147.

CHAPTER IV

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This study was to test one of Marshall McLuhan's quasitheoretical notions and a related theory of the author. McLuhan has asserted that a hot message is more effective via a hot medium, while a cool message is more effective via a cool medium. The author hypothesized that people of different personality types might respond differently to various media and messages.

The cool medium used was television and the hot medium used was radio. Hot and cool message treatments were constructed for each medium. Personalities were typed by relative positions on Rokeach's Dogmatism Scale.

Students from four general studies classes at Oklahoma State University were used as subjects. Students were randomly de-selected to make all four classes equal in size, with 30 students in each. All students were given the Rokeach Dogmatism Scale. For each subject, the dogmatism score was computed. Inserted within the scale was the pre-test question. One week later each class comprising 10 high, 10 medium and 10 low dogmatic persons was administered one of the four treatments:

1. Hot message, radio
2. Cool message, radio
3. Hot message, TV
4. Cool message, TV

Following the treatment, a questionnaire containing the post-test question was administered.

All four messages took the position that medical science will find a cure for the common cold in the near future. As pre-test and post-test, the subjects were asked to what extent they agreed that a cure for the cold would be found. Their responses were registered on a six-point scale, and an individual's opinion change score was obtained by subtracting his pre-test from his post-test response. Messages were persuasively effective when they produced positive opinion change.

A factorial analysis of variance was computed with the difference scores. This compared the amount of opinion change produced by hot and cool media and messages in high, medium and low dogmatic persons.

Analysis yielded only one significant finding among the groups. It was in the interaction between media and types of respondents. This interaction found that more positive opinion change occurred in high dogmatic persons by TV, much more was created in medium dogmatic persons by radio, and slightly more in low dogmatic persons by radio. These results could have occurred by chance less than five times in 100.

Other relationships were not significant. Other variance observed in the experiment was attributed mostly to differences within individuals rather than to the effects of the independent variables.

Conclusions

No differences were found in the amount of opinion change produced by radio or TV while using hot and cool messages, as defined by McLuhan.

In practical application the author suggests that those who control media content take a closer look at McLuhan's theory that hot messages

and hot media make one another more effective and cool messages and cool media make one another more effective. To support the theory, McLuhan cites isolated examples, such as the Kennedy-Nixon debates, but this ex post facto claim remains untested for internal and external validity.

If we were to follow McLuhan's recommendations, we would, for example, generally expect to create more opinion change via radio if we used hard sell advertising, a hot treatment. This research, however, supports the belief that we might be equally effective, at least in some instances, with soft sell advertising on radio.

Data regarding subjects' dogmatism scores support the belief that television is more effective than radio in creating opinion change in highly dogmatic persons. Thus, it might be assumed that any communication directed to highly dogmatic people might be more effective on television than on radio. This does not necessarily imply that any cool medium would be more effective than any hot medium in communicating with highly dogmatic persons, although it does lend some support to that belief.

The research also suggested that radio is more effective than television in creating opinion change in medium dogmatic persons, and slightly more effective for low dogmatic persons. From this it may be assumed that radio would generally be more effective than TV in communicating a message directed to non-high dogmatic persons. This does not imply necessarily that any hot medium would be more effective than any cool medium in communicating with non-high dogmatic persons, but it does lend support to that belief.

These conclusions suggest that the most effective communication with a general audience - one that includes persons of all dogmatic types - would require the use of both radio and TV.

The relationships predicted in H_7 and H_8 were confirmed, but the variance did not occur in the predicted direction. The hypotheses predicted that the high dogmatic persons would be persuaded more by radio and the low dogmatic persons would be persuaded more by TV. The author expected these effects because of the high dogmatic individual's authoritarian orientation and the low dogmatic individual's non-authoritarian orientation. However, in formulating these theories, the author overlooked the predominant characteristics of high and low dogmatic persons. The high dogmatic individual tends to think he "knows all the answers". Thus, he is not likely to change his opinion unless he is channeled into feeling that he has made a discovery. He resists being instructed. On the other hand, the low dogmatic person is open-minded. He tends to consider new information and does not tend to reject being instructed. The findings of this research indicate that the close-minded individual was able to participate in making the opinion change suggested by TV, while the open-minded person made his opinion change after being instructed by the radio. Therefore, it appears that McLuhan's descriptions of the audience effects of hot and cool media were operating in this experiment, but they operated differently for different personality types.

In summary, the author recommends that those who communicate via mass media can gain some helpful theoretical guidelines from this study. First, the author suggests that McLuhan's theory that a hot message and a hot medium make one another more effective and that a cool message

and a cool medium make one another more effective need not be followed unless it is supported by other research. Second, the author suggests that television would be more effective than radio in communicating with a high dogmatic audience, and radio would be more effective than TV in communicating with a medium or low dogmatic audience. Both media would be required for optimum effectiveness in communicating to a general audience including high, medium and low dogmatic persons.

These recommendations, however, should be considered tentative and incomplete. The "answers" this research provides ask further questions, as further research is necessary to make proper use of these findings. Some examples of applying these findings will help illustrate the need for additional information.

An example of applying these findings might be found in politics. A candidate for office could segment the population demographically, then use Rokeach's Dogmatism Scale to identify segments of the population who score high, medium and low in dogmatism. From this he might discover that a dogmatic category is characteristic of a certain demographic group. He might find that he lacks support from a group that is high in dogmatism. As he sets out to win their support, this research would suggest that he need not be concerned about the hotness or coolness of his message. However, this research suggests that for the high dogmatic public he can expect to be more persuasive via television than via radio.

Another example could be found in education. Even today the public schools are improving their effectiveness by providing special training for slow learners, the hard-of-hearing, the accelerated student and other groups. This research suggests that further effectiveness might

be achieved by varying the instructional media among students in the various dogmatic categories. Students could be grouped according to relative positions on the Rokeach Dogmatism Scale, then the various groups could receive the same instruction. But if the recommendations fo this research were followed, the high dogmatic students should receive their instruction via television, while the medium and low groups receive their instruction via radio, or the radio substitute used in the research, a tape recording.

It is already obvious that the findings of this research are inadequate, as they offer information only about television and radio. It would be possible to repeat this research to compare various combinations of media. If the politician mentioned above had information from such research, he could determine which of several media would be most effective for persuading the high dogmatic public. It has previously been noted that while this research does not test all hot and cool media, it does lend support to a belief that the findings for television may be applied to other cool media and the findings for radio may be applied to other hot media. Further research could give evidence as to whether the findings are in fact generalizable to other hot and cool media. In the public school example mentioned above, it might be found that any cool medium, such as a seminar, might be just as effective as television for high dogmatic students. Also, it might be found that any hot medium, such as lecture, would be just effective as radio or tape recording for medium and low dogmatic students.

The findings and conclusions of this research could be very useful when combined with other data from both experimental and ex

post facto research, data that might seem unrelated. Many hypotheses could be constructed and tested.

Since this research supports the belief that high dogmatic persons are persuaded better than other dogmatic types by television, it might be hypothesized that high dogmatic people watch more television than lower dogmatic types. If further research supports this hypothesis, then it could be assumed that television would be far superior in effectiveness and efficiency for communicating with a high dogmatic audience. Not only could the communicator expect to be more effective via television than via other media in communicating with high dogmatic persons, but he could expect to reach more high dogmatic persons more often than other dogmatic types mia television.

Following the same example, it might further be hypothesized that high dogmatic persons watch television more than they listen to radio or read newspapers. While the amount of attention given various media would be difficult to measure, this hypothesis could be tested. If research supported the hypothesis, then it would be reasonable to assume that television would probably reach more high dogmatic persons more often than other media.

On the other hand, the hypothesis might not be supported; research could support the belief that high dogmatic persons pay more attention to other media than to television. If this was found, research might still point to certain types of television programming, or even individual programs, that are watched heavily by high dogmatic persons. Such programming then could be selected as the most efficient and effective vehicle for reaching the high dogmatic audience via television.

Since this research gives evidence that various dogmatic types react differently to messages from different media, it might also prove helpful to establish a cause-effect relationship between dogmatism and the tendency to be persuaded by various media. A similar analysis was conducted by Leonard D. Eron, et al., in their study to establish a cause-effect relationship between preference for violent television programming in childhood and aggressive behavior.[1] Using their methodology and analysis as a guide, it would be possible to set up cross-lagged correlations between the relative dogmatism groups and their tendency to be persuaded by various media, giving evidence on which is cause and which is effect. Such correlations could usefully include preferences for the various media, with the preferences determined experimentally.

This cause-effect research might give evidence that being high in dogmatism, for instance, causes a person to be persuaded more by television. This assumption was the basis for this author's hypotheses regarding dogmatism. However, such research might establish the opposite relationship. It might be found that the tendency to be persuaded more by television than by other media tends to make a person high in dogmatism. Or it could be found that a preference for watching television, rather than other media, tends to make a person persuaded more by television, and/or tends to make a person higher in dogmatism. Similar relationships may or may not be found between lower dogmatism and cool media.

This cause-effect research could provide useful guidelines for conditioning the public to learning. For instance, at this time the most common media for public school education are books and lecture,

both hot media. This research suggests that medium and low dogmatic persons might be persuaded better than other dogmatic types by hot media. If further research supports this belief, then it is conceivable that schools could embark on a program to develop lower dogmatic thinking, thus better equipping students for the media at their disposal. It might be found that the very use of the hot media for classroom instruction engenders lower dogmatic personalities, and that the use of cool media engenders higher dogmatic thinking.

I can be seen at this point that increased understanding of the relationships among persuasion, personality and media and messages will sooner or later require value judgements in application. Parents, networks or governments may be able to mold children's personalities by regulating the amounts of hot and cool media they are exposed to. In religion, in politics, in social reform, the possibilities are endless for the understanding, the use and missuse of the media.

Significant relationships between dogmatism and media effectiveness suggest that there may exist other significant personality or demographic variables and media effectiveness. Such demographic variables as I.Q., education, age, income and occupation, and such personality variables as authoritarianism, neuroses, phobias and modes of social perception, could all be investigated. These variables could provide data on the types of differences among individuals that contributed a relatively great amount to the variance in this research. The possibilities for finding significant relationships with media effectiveness are limited only by the ingenuity and imagination of communication researchers. Dogmatism's role in determining the effectiveness of various media may prove to be relatively unimportant; other variables

could point to more practical methods of understanding and controlling media effectiveness and efficiency than those suggested by dogmatic groups' differences.

Some first steps have already been made toward acquiring the type of data that is necessary for applying the findings of this research. America's marketing and advertising industries have recently become concerned with psychographics, a variation of demographics that identifies the attitudes and value structures of various groups. Educational testing is constantly being improved, and the educational system is being geared more to the needs of individual students. Audience measurements for the various media are becoming more sophisticated as efforts are made to pinpoint market segments within the audiences.

But the key to making successful use of the findings from these types of data and the findings of this research is in the synthesis. As illustrated in the preceeding examples, findings about the effects of radio and television on various dogmatic types have ramifications that can affect the communicator's understanding of the media, his messages and his audience. The more the communicator understands about the interplay of this myriad of variables, the more effective he can become. Thus, it can be seen that the findings of this research are of little value alone. For most effective application, these findings demand further research in related areas, in the public's use of media, in the cause-effect relationships among media, messages and audiences, and in comparison of the persuasive effects of other combinations of hot and cool media and messages. There is much work to be done to achieve better understanding of the intricacies of mass communication. The "answers" of research ask more questions and demand synthesis.

Further Study in this Area

It must be noted that the media and subjects do not behave in the laboratory as they behave in the field. Undoubtedly, a good deal of the effect of television can be attributed to its place in the home, its place as a member of the family, and possibly even the fact that we are responsible for tuning the picture. For the radio portion of this experiment, it was necessary to use a tape recording. Although the tape recorder is a hot medium, according to McLuhan's definitions, and although the subjects were told they were listening to a recording of a radio broadcast, it must be noted that an actual radio was not used. Also, part of radio's effect in the field may result from its portability and the tactility of the personal transistor set. These are things that can account for a good deal of hotness and coolness.

But, on the other hand, by using this laboratory setting, the author isolated certain aspects of McLuhan's descriptions of the media's characteristics. We are excluding the usual social and physical settings of the media as we concentrate on the isolated interplay of the senses in perceiving messages via radio and television. It is these perceptual processes that McLuhan emphasizes when he discusses why different media affect audiences differently. Our experimental results pointed up differences in these perceptual processes. It could be inferred that operation of the social and physical settings of the media in the field would serve to accentuate those differences. In other words, if McLuhan's theories are operating, then we can expect more difference in the field than we find in this research between the effects of hot and cool media and messages and between the perceptual processes of high, medium and low dogmatic persons.

This suggests further study. While McLuhan's theories were not all supported in this research, a field study of the same topic might yield different results. This experiment could be conducted in the field if the researchers had access to controlling the media. If real differences among the effects of various media and messages were observed in such a study, it would suggest that the differences were caused not only by the different perceptual processes required by the various media, which McLuhan emphasizes, but also by the social and physical settings in which the media are used in the field.

In further research, the messages used herein could be made hotter and cooler by punctuating them with music and sound effects and by adding or subtracting visual stimuli. For instance, the hot messages could identify the doctor very explicitly if he delivered the lecture from a laboratory while wearing a smock. Imaginative use of typography could make the charts and graphs hotter. Viedo tapes or audio tapes, announced or not, could add hotness or coolness. The messages used in this experiment were not extremely hot or extremely cool, so systematic variance was not maximized. However, the messages were prepared with careful consideration of the nuances of McLuhan's theories. Any attempt to make them hotter or cooler would also require intense study of McLuhan literature to avoid making false assumptions or running afoul of what appear to be contradictions in his writing.

Any repeat of the experiment would benefit from the use of a larger sample of at least 200 subjects. The use of classes intact is recommended for several reasons: to assemble a group of randomly selected subjects would be desirable, but is difficult and often proves unfeasible; to use volunteers would result in some degree of self-

selection; to administer the treatments and measures to individuals would be very expensive, due to the cost of replaying video tapes or tilms through closed-circuit television; the classroom situation helps to minimize the laboratory "guinea pig" effect. It would be helpful to randomly select the classes to be used. Because of the special interests of the persons self-selecting into various college classes, we can see that it would be easy to draw a biased sample. Once again, the bigger the sample, the better. If a relatively large random sample of classes is not possible, the researchers will be safer with freshman level general studies courses. Classes of this type would yield a sample of uniform age, but diverse in other variables such as I.Q., interests, abilities and history. A heterogeneous sample will contribute to the generalizability of the findings.

The Need to Study McLuhan's Theory

The author previously discusses McLuhan's observation that John Kennedy was cool and Richard Nixon was hot in 1960. But McLuhan also has said that Nixon toned down so that in 1968 he was cool, while Hubert Humphrey was hot.[2] And he says that Lyndon Johnson "botched it the same way Nixon did in 1960. He was too intense, too obsessed with making his audience love and revere him as father and teacher, and too classifiable...The people wouldn't have cared if John Kennedy lied to them on TV, but they couldn't stomach L.B.J. even when he told the truth...The political candidate who understands TV...whatever his party, goals or beliefs...can gain power unknown in history."[3]

We can hardly ignore such assertions, for while they may seem absurd, they come from a man who sees significance where others see

nothing, a man who recategorizes and subidvides communication phenomena that have been researched before, yielding few guiding conclusions. While the results of this research do not support all of the particular theory under investigation, we have only made one very small step in studying the complexities of McLuhan's writing.

McLuhan's political analysis suggests the first of two important viewpoints from which further research should be conducted and the results applied. The first viewpoint is that of the mass communicators, those having access to the media. The importance here has already been implied by McLuhan's assertion that the candidate who best manipulates the media controls the election.

Anthropologist Margaret Mead has said, "There is great advantage in moving fast if you move completely; if social, educational and recreational changes keep pace. You must change the whole pattern at once and the whole group together...and the people themselves must decide to move."[4]

And McLuhan speaks to her point, saying, "We are close to the time when the emotional climate could be controlled [by controlling hot and cool media use] just as we control the economy."[5]

For this very reason, he says, it is more necessary than ever in our educational task "not only to provide basic tools of perception, but to develop judgment and discrimination with ordinary social experience."[6] This leads to the second important viewpoint, that of the educators.

McLuhan has said, "The metropolis is a classroom. This is a view that upsets and repulses teachers but is very acceptable to students."[7] He says we cannot rely on the one-way passing along of knowledge to

students. "They're already in a field of knowledge far more complex than anything ever conveyed by traditional curricula...Until we master the multiple grammars of the new non-written media we shall have no curriculum relevant to the new languages of knowledge and communication which have come into existence via the new media...These new languages are known to most people, but their grammars are not known at all."[8]

Klapper lists "contributory aspects" of communication as the immediate source, the medium, the content and miscellaneous aspects of the social situation.[9] McLuhan suggests, however, that there are contributory aspects that are media, themselves; that there are media that are messages; that there are messages that are languages; and that we use languages for which we do not know the grammars. He suggests that we communicate unwittingly in ways that affect our individual behaviors and our human associations in general.

Perhaps research undertaken with this different orientation could produce supporting data. Perhaps we have not made a sufficient attempt to learn or build grammars for the new languages. If we could structure our non-written communications in somewhat the same manner in which we have structured the printed word we might be able to make our communications more effective, and we might teach a new generation to discriminate, rather than merely to perceive.

McLuhan recommends, "Study the modes of the media, in order to raise all assumptions out of the subliminal, non-verbal realm for scrutiny and for prediction and control of human purposes."[10]

FOOTNOTES

[1]Leonard D. Eron et al., "Does Television Violence Cause Aggression?", American Psychologist, (April, 1972).

[2]"Playboy Interview: Marshall McLuhan," Playboy, (March, 1969), p. 61.

[3]Ibid. p. 62.

[4]Marshall H. McLuhan, Understanding Media, (New York, 1964), p. 27.

[5]Ibid. p. 28.

[6]Gerald E. Stearn, ed., McLuhan: Hot and Cool, (New York, 1969),

[7]Ibid. p. 119.

[8]Ibid. pp. 159-160.

[9]Joseph T. Klapper, The Effects of Mass Communication, (Glencoe, Illinois, 1960), pp. 98-131.

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APPENDIX A

ROKEACH'S DOGMATISM SCALE, FORM E, INCLUDING OPINION-MEASURE QUESTION

NATIONAL OPINION SURVEY COUNCIL
Personal Opinion Ballot

This is a study of what the general public thinks and feels about a number of important social and political questions. The best answer to each statement below is your personal opinion. We have tried to cover many different opposing points of view; you may find yourself agreeing strongly with some of the statements, disagreeing strongly with others, and perhaps uncertain about others. Whether you agree or disagree with any statement, you may be sure that many other people feel the same as you do.

Please check the space below each statement according to how strongly you agree or disagree with it. Please mark every one.

Check -1, -2, -3, or +1, +2, +3, depending on how you feel in each case.

1. The United States and Russia have just about nothing in common.
   Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

2. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.
   Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

3. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.
   Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

4. Man on his own is a helpless and miserable creature.
   Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

5. Fundamentally, the world we live in is a pretty lonesome place.
   Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

6. Most people just don't give a "damn" for others.
   Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

7. I'd like it if I could find someone who would tell me how to solve my personal problems.
   Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

8. It is only natural for a person to be rather fearful of the future.
   Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

9. There is so much to be done and so little time to do it in.
   Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

10. Once I get wound up in a heated discussion I just can't stop.
    Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

11. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.
    Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

12. In a heated discussion I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.
    Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

13. It is better to be a dead hero than to be a live coward.
    Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

14. While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare.
    Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

15. The main thing in life is for a person to want to do something important.
    Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

16. If given the chance I would do something of great benefit to the world.
    Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

17. In the history of mankind there have probably been just a handful of really great thinkers.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

18. There are a number of people I have come to hate because of the things they stand for.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

19. A man who does not believe in some great cause has not really lived.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

20. It is only when a person devotes himself to an ideal or cause that life becomes meaningful.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

21. Of all the different philosophies which exist in this world there is probably only one which is correct.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

22. A person who gets enthusiastic about too many causes is likely to be a pretty "wishy-washy" sort of person.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

23. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

24. When it comes to differences of opinion in religion we must be careful not to compromise with those who believe differently from the way we do.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

25. In times like these, a person must be pretty selfish if he considers primarily his own happiness.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

26. The worst crime a person could commit is to attack publicly the people who believe in the same thing he does.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

27. In times like these it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

28. A group which tolerates too much differences of opinion among its own members cannot exist for long.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

29. There are two kinds of people in this world: those who are for the truth and those who are against the truth.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

30. My blood boils whenever a person stubbornly refuses to admit he's wrong.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

31. A person who thinks primarily of his own happiness is beneath contempt.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

32. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

33. In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

34. It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

35. In the long run the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

36. The present is all too often full of unhappiness. It is only the future that counts.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

37. If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all."

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

38. Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

39. Most people just don't know what's good for them.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

40. Medical science will probably find a cure for the common cold within the next year or two.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

41. It is only natural that a person would have a much better acquaintance with ideas he believes in than with ideas he opposes.

Strongly disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly agree

birthdate_____ sex_____

home town_____ major_____

APPENDIX B

HOT AND COOL TELEVISION SCRIPTS

SCRIPT: LECTURE

Video	Audio
Open on LS of Dr. at Podium	Anncr: Good day and welcome to the Broadcast Journal. Today we present Dr. John Lamberton, director of Lakeside Memorial Hospital in Chicago, Illinois. Dr. Lamberton is also on the staff of the Illinois Medical Research Center. He is well known as a medical lecturer in many countries around the world. Today Dr. Lamberton will speak on the question, "Will Medical Science Find a Cure for the Common Cold in the Near Future?" Now, Dr. Lamberton.
Zoom in to CU	
sup. sl. ID Dr.	
Cut to M.S.	
	Dr: Let me begin with some basic information about the common cold. The cold is an inflammation of the upper respiratory tract caused by infection with a virus. This infection affects the physiology of the mucous membrane in the nose, sinuses and throat, causing swelling, soreness and excessive drainage. The common cold is spread by direct person-to-person contact. Viruses of infected persons are given off during breathing, coughing, sneezing and talking. So, as you might

guess, colds are more prevalent in crowds of people. Studies show that cold weather and chilling actually have very little to do with catching a cold. It's just that in the winter, people, expecially school children, have more direct contact. Most colds occur among school children...they have an average of about 6 to 12 a year. Their parents have an average of 6, and older adults have about 2 or 3. A cold usually begins with sneezing, headache and general tiredness, and that is followed by sore throat, chilling and a stopped-up nose. Then these symptoms recede as the cold progresses to its hallmark, the runny nose, as I'm sure you all can testify. Whether we will find a cure for the cold is a hot medical question right now. But in light of what we know about it, and in light of the research now being done, I furmly believe that we will find a cure very soon.

Some people feel that there are more important things for medical science to work on. They say that while there are things like cancer to work on, we

really can't afford to devote any money or manpower to something as insignificant as the cold.

They have a very good point. One thing the other research efforts have in their favor are the various fund-raising foundations. There's the Cancer Foundation, the Heart Fund, the March of Dimes, the Cerebral Palsy Fund, and many others, including local fundraising efforts for the various special research centers. These demand intense research for their cures. But I think we have to look at the problem this way: we're not really in competition for money and manpower...it's not a situation where we have to choose between researching cancer and researching the cold ... we can research both. Right now some of the world's top medical talent is being devoted to those special serious diseases, while a lot of the work on colds is being done in medical schools. But there is another important source of research on colds. That is the virologists, scientists who study viruses, and of course their study includes the viruses

that cause the cold. These men are specialists.

However, I think the most important thing is that it is a false assumption to say that the cold is insignificant. We all think of it that way, because it is usually just a nuisance, it doesn't make us too ill, and it's gone in a few days. But when you think of that happening to everyone in the country three or four times a year, it becomes more important. In fact, just because the common cold is so severe, it demands the attention of medical science.

The common cold causes a tremendous amount of human suffering. As I said, the average is three per person per year. A cold usually lasts from three to ten days. During part of this period the victim may feel miserable. If he is wise he spends a few days in bed. When a person has a cold or a series of colds, he may stay home from work, he might have decreased effectiveness, or he might be sufficiently ill to feel that several days have been wasted. In any case, we can make a

rough estimate of the damage done by the cold as the individual's loss of productivity for about seven days. Let us assume that the average with the common cold is seven days per person per year. That seven days means a loss in personal income of about 15 billion dollars annually. Any disease that costs us 15 billion dollars certainly demands research for a cure.

Cut to Slide #1

Cut to MS of Dr.

But then, it is not just the cold that is so pressing; it is the fact that the cold often leads to complications. You see after some days the tissues of the nose and throat are weakened by the virus and are easily invaded by bacteria. This secondary infection may spread to the sinuses, the tonsils, the middle ear, and even the lungs. This means the possibility of such serious complications as mastoiditis, meningitis and pneumonia. So you can see that if we control the cold, it would be a big step toward controlling these other serious infections. As I said, it is just because the cold is so common, and because it often leads to more serious diseases that it

demands the attention of medical research.

One product of our research so far is our knowledge of Vitamin C. This Vitamin may be very effective in the war against the cold. Studies have been done since the 1940's showing that persons who regularly consume a certain amount of Vitamin C have fewer colds than persons who do not take it. Most doctors and medical schools have been very slow to take up the idea that diet can help control disease...but here is a very good example of a natural food substance found in all citrus fruits, that has been proven able to prevent the cold. In fact, in 1968 a doctor came up with very good evidence that if a person does begin to get a cold, an increased dosage of Vitamin C can stop the cold and keep it from maturing. Consider this...the people of the United States spend about five hundred million dollars every year on cold medicines. These medicines do not prevent or cure the cold. They may make the victim more comfortable, but they do harm because of their side effects. On the

other hand, Vitamin C is harmless, even when taken in large amounts. It can prevent the cold and even cure it if taken

Dissolve to Slide #2

early enough. If Vitamin C were in general use, the price would decrease to the point that it might cost about one dollar to protect a person for a year. That means about two hundred million dollars to protect the whole United States, which is a good deal less than the five hundred million dollars now spent on cold medicines and the fifteen billion dollars monetary

Dissolve to MS of Dr.

damage done by the cold annually.

There are many different viruses that can cause the cold. Some people say that this is one reason for not finding a cure... we aren't just working with one disease, but rather with many diseases, and we can't find a cure because the cold is too hard to define or identify.

But the fact is, we have identified all the viruses and we know a good deal about the way they

Dissolve to Slide #3

behave. The viruses occur in families. Most colds are caused by the Rhinoviruses. To give you some idea of the magnitude of the problem here, the Rhinoviruses alone have almost sixty

varieties. The flu viruses have three types associated with the cold, the paraflu have four, the adeno have eight, and so on. Now when we say these are associated with the cold, we mean they can cause colds...they may be different structurally, but they behave similarly in the body.

Dissolve to MS of Dr.

So we are dealing with many viruses, but we have identified them all, and they do produce the same chemistry, the same weakening of the tissues in the body.

This means the chances of finding a cure...something to stop all those viruses...are quite good. In fact, as I said before I think we are on the doorstep

Dissolve to Slide #4

of the cure. As you may know, the way to cure a viral infection is to build an antibody... that is what we do with the polio vaccine, for instance...we inject or swallow some of the dead polio virus, and the body builds up the antibody, which fight the live virus when we come in con-

Dissolve to Slide #5

tact with it. Now, in the case of the cold, we know it has been caused by one of these viruses. When the cold is over, the person has built up an antibody to that virus. He can not

be infected by that particular virus again for from one to two years. But in the meantime, he may be infected by one of the others. In other words, the natural antibodies work only on one specific virus. So, you can see our problem is to develop a vaccine that causes the body to build up antibodies against almost a hundred viruses. That step is right around the corner. We have identified the viruses and we know how they behave. All that is left to do is combine those dead viruses in a way that they will not react with each other and can be injected into the human body.

Dissolve to MS of Dr.

Cut to MCU of Dr.

Let me summarize what I've said. The cold has the attention of medical researchers...it may not seem very important to us, but it could be fatal to a person with a severe heart condition, and of course we all know it can lead to more serious diseases like pneumonia. I think we have two routes to take in wiping out the common cold. First, we have Vitamin C, which could be put into use on a large scale to prevent colds at a very low cost. This is simply a problem of educating the

public and getting them to use it. Second, we have the basic knowledge necessary to develop a vaccine to prevent colds or to cure them once they start. All that is left to do is to find the way to combine the viruses so they produce antibodies. Therefore, it is only a matter of time, and a very short time, until we wipe out the common cold.

Zoom out

SCRIPT: SEMINAR

Video	Audio
Open on L.S. of group	Anncr: Good day and welcome to the Broadcast Journal. Today we
Sup SL 1	present Dr. John Lamberton,
Sup SL 2	director of Lakeside Memorial Hospital in Chicago, Illinois.
CU of DR.	Dr. Lamberton is also on the staff of the Illinois Medical Research Center. He is well
Sup SL 3	known as a medical lecturer in many countries around the world. Today Dr. Lamberton will speak on the question, "Will Medical Science Find a Cure for the Common Cold in the Near Future?" Sitting in this seminar with Dr. Lamberton are several students from the University of Illinois. And now, Dr. Lamberton.
MS of Dr.	Dr: Let me begin with a few opening remarks, then we'll just open this up for your questions. I'll just tell you a few basic things about the common cold. The common cold is an inflammation of the upper respiratory tract caused by infection with a virus. This infection affects the physiology of the mucous membrane in the nose, sinuses and throat, causing swelling, soreness and excessive drainage.

The common cold is spread by direct person-to-person contact. Viruses of infected persons are given off during breathing, coughing, sneezing and talking. So, as you might guess, colds are more prevalent in crowds of people. Studies show that cold weather and chilling actually have very little to do with catching cold. It's just that in the winter, people, especially school children, have more direct contact. Most colds occur among school children...they have about 6 to 12 a year on the average. Their parents have an average of six, and older adults have about 2 or 3. A cold usually begins with sneezing, headache and general tiredness, and that is followed by sore throat, chilling and a stopped-up nose. Then these symptoms recede as the cold progresses to its hallmark, the runny nose, as I'm sure you all can testify. Whether we will find a cure for the cold is a hot medical question right now. But in light of what we now know about it, and in light of the research now being done, I firmly believe that we will find a cure very soon. Now some of you may think differently, or

maybe you'd like more information about it, so we'll just open this up for your questions now.

Cut to MS of Student

Ted: Dr. Lamberton, I'm sure medical science has the ability to find a cure for the cold if the researchers really work hard on it, but it seems that there are so many more important things like cancer to work on that we can't really afford to devote any money or manpower to something as insignificant as the cold.

Cut to Dr. (MS)

Dr: You have a very good point there. One thing the other research efforts have in their favor are the various fund-raising foundations. There's the Cancer Foundation, the Heart Fund, the March of Dimes, the Cerebral Palsy Fund, and many others, including local fund-raising efforts for the various special research centers. These are serious illnesses, and they demand intense research for their cures. But I think we have to view the problem this way: we're not really in competition for money and manpower ...it's not a situation where we have to choose between

researching cancer and researching colds...we can research both. Right now some of the world's top medical talent is being devoted to those special serious diseases, while a lot of the work on colds is being done in medical schools. But there is another important source of research on colds. That is the virologists, scientists who study viruses, and of course their study includes the viruses that cause the cold. These men are specialists. I think the most important answer to your question, however, is that you are making a false assumption...you said, "How can we afford to spend money and manpower on something as insignificant as the cold?" Well, we all think of the cold as insignificant, because it is usually just a nuisance, it doesn't mak us too ill, and it's gone in a few days. But when you think of that happening to everyone in the country three or four times a year, it becomes more important. In fact, just because the common cold is so severe, it demands the attention of medical science.

Cut to MS of Student

Lynn: Dr. Lamberton, when you say the cold is severe, what do you mean? How serious is it?

Cut to MS of Dr.

Dr: I'm glad you asked me to clarify that. The common cold causes a tremendous amount of human suffering. As I said, the average is three per person per year. A cold usually lasts from three to ten days. During part of this period the victim may feel miserable. If he is wise he spends a few days in bed. When a person has a cold or a series of colds, he may stay home from work, he might have decreased effectiveness, or he might be sufficiently ill to feel that several days have been wasted. In any case, we can make a rough estimate of the damage done by the cold as the individual's loss of productivity for about seven days. Let us assume that the average loss of time because of serious illness with the common cold is seven days per person per year. Look at this chart. It is based on the yearly personal income of the U.S. That seven days means a loss in personal income of about 15 billion dollars annually. A disease that costs us 15 billion dollars certainly demands

Dr. pick up card. Dissolve to CU of card

		research for a cure. But then,
Dissolve to LS of Students and Dr.		it's not just the cold itself that is so pressing; it is the fact that the cold often leads to complications. You see, after some days the tissues of the nose and throat are weakened by the virus and are easily invaded by bacteria. This secondary infection may spread to the sinuses, the tonsils, the middle ear, and even the lungs. This means the possibility of such serious complications as mastoiditis, meningitis and pneumonia. So you can see that if we could control the cold, it would be a big step toward controlling these other serious infections. So, as I said, it is just because the cold is so common, and because it often leads to more serious diseases that it demands the attention of medical research.
Cut to MS of Student	John:	Dr. Lamberton, I've heard a lot about Vitamin C as a cure for the cold. Can you tell us just how effective it really is?
Cut to MS of Dr.	Dr:	Yes. As a matter of fact, Vitamin C may be very important in the war against the cold. Studies have been done since the 1940's, showing that persons

who regularly consume a certain amount of Vitamin C have fewer colds than persons who do not take it. Most doctors and medical schools have been very slow to take up the idea that diet can help control disease... but here is a very good example of a natural food substance found in all citrus fruits, that has been proven able to prevent the cold. In fact, in 1968 a doctor came up with very good evidence that if a person does begin to get a cold, an increased dosage of Vitamin C can stop the cold and keep it from maturing. Consider this...the people of the United States spend about

Dissolve to MS panning students

five hundred million dollars every year on cold medicines. These medicines do not prevent or cure the colds. They may make the victim more comfortable, but they also do harm because of their side effects. On the other hand, Vitamin C is harmless, even when taken in large amounts. It can prevent the cold and even cure it if taken early enough. Now look

Dr. picks up card. Dissolve to CU of card

at this chart on the cost of Vitamin C. If Vitamin C were in general use, the price would decrease to the point that it might cost about one dollar to

protect a person for a year. That means about two hundred million dollars to protect the United States, which is a good deal less than the five hundred million now spent on cold medicines and the fifteen billion dollars monetary damage done by the cold annually.

Cut to MS of student

Joe: Dr. Lamberton, aren't there a lot of different viruses that can cause the cold? It seems that if this is so, there is not just one disease, but rather several diseases, and maybe we can't find a cure because the cold is so hard to define or identify.

Cut to MS of Dr.

Dr: You're right. There are many viruses that cause the cold. But we have identified them all, and we know a good deal about the way they behave. The viruses occur in families. This chart will illustrate the number of viruses that cause colds. Most colds are caused by the Rhinoviruses. To give you some idea of the magnitude of the problem here, the Rhinoviruses alone have almost sixty varieties. The flu viruses have three types associated with the cold, the paraflu have 4, the adeno have 8, and so on. Now when we say

Dr. picks up card. Dissolve to CU of card

		these are associated with the cold, we mean they can cause colds...they may be different structurally, but they behave similarly in the body. So, in
Dissolve to MS of Dr.		answer to your question, yes, we are dealing with many viruses but we have identified them all, and they do produce the same chemistry, the same weakening of the tissues in the body.
Cut to MS of student	Lynn:	If that is so, Dr. Lamberton, what are the chances of finding a cure? I mean, how do you find something to stop all those viruses?
Cut to MS of Dr.	Dr:	Actually, the chances are quite good. In fact, as I said before I think we are on the doorstep of the cure. This is a microscopic photograph of some Rhinoviruses. As you may know, the way to cure a viral infection is to build an antibody...that is what we do with the polio vaccine, for instance...we inject or swallow some of the dead polio virus, and the body builds up the antibody, which fights the live virus when we contact it. Here is a close-up
Dr. picks up card. Dissolve to CU of card		of one of the Rhinoviruses. Now, in the case of the cold, when a person has a cold, we

know it has been caused by one of these viruses. When the cold is over, the person has built up an antibody to that virus. He can not be infected by that particular virus again for from one to two years. But in the meantime, he may be infected by one of the others. In other words, the natural antibodies work only on one specific virus. So, you can see, our problem is to develop a vaccine that causes

Dissolve to LS of group

the body to build up antibodies against almost a hundred viruses. And that step is right around the corner. We have identified the viruses and we know how they behave. All that is left to do is combine these dead viruses in a way that they will not react with each other and can be injected in the human

Cut to CU of Dr.

body. Let me summarize what we've said. The cold has the attention of medical researchers...it may not seem very important to us, but it could be fatal to a person with a severe hear condition, and of course we all know it can lead to more serious diseases like pneumonia. I think we have two routes to take in wiping out the common cold. First, we have Vitamin C, which could be put into use on

a large scale to prevent colds at a very low cost. This is simply a problem of educating the public and getting them to use it. Second, we have the basic knowledge necessary to develop a vaccine to prevent colds or to cure them once they start. All that is left to do is to find the way to combine the viruses so they produce antibodies. Therefore, it is only a matter of time, and a very short time, until we wipe out the common cold.

Dissolve to LS to group

APPENDIX C

POST-TEST QUESTIONNAIRE

1. The way to cure a virus infection is to build:
   a) an antithesis
   b) a vaccine
   c) an antibody

2. If Vitamin C were in general use, it would protect the entire U.S. from colds for a cost of about:
   a) $500 per person per year
   b) $1 per person per year
   c) $200 billion
   d) $12 million

3. The common cold can be caused by about _____ different viruses.
   a) 12
   b) 30
   c) 60
   d) 100

4. According to the doctor, the only step left in finding a cure for the common cold is:
   a) identifying the viruses that cause it
   b) combining the viruses into a vaccine
   c) learning how the viruses behave in the body
   d) innoculating the public

5. According to the doctor, Vitamin C is _____ in preventing colds.
   a) not very effective
   b) somewhat effective
   c) moderately effective
   d) very effective

6. The doctor's name was _____.

7. Do you feel the doctor gave a fair presentation of the facts?

8. Do you feel the doctor's conclusion was justified?

9. Do you feel that medical science will find a cure for the common cold in the near future...say, in the next year or two? Please rate your answer on this scale.

Strongly Disagree ____-3 ____-2 ____-1 +1____ +2____ +3____ Strongly Agree

APPENDIX D

SUBJECTS' SCORES ON THE ROKEACH DOGMATISM SCALE

SUBJECTS' SCORES ON THE ROKEACH

DOGMATISM SCALE

	Radio		TV		
	Hot	Cool	Hot	Cool	
	188	189	197	238	
	185	173	185	202	
	183	172	185	201	
	179	171	183	201	HIGH
	178	166	164	200	Total: 7002
	165	164	160	184	Mean: 175.1
	163	164	160	176	
	162	164	159	163	
	159	163	159	162	
	158	160	155	162	
	154	160	153	161	
	150	159	152	160	
	144	154	150	160	
	143	154	149	155	MEDIUM
	143	153	149	154	Total: 5940
	137	149	147	154	Mean: 148.5
	136	147	147	153	
	135	144	145	153	
	135	142	144	152	
	130	141	143	149	
	127	139	138	144	
	126	133	135	143	
	126	129	134	143	
	122	122	133	140	LOW
	122	121	126	135	Total: 5052
	122	119	116	129	Mean: 126.3
	117	117	115	126	
	115	113	112	111	
	114	106	110	109	
	114	100	102	98	
Total:	4332	4388	4407	4718	
Mean:	144	146	147	157	

APPENDIX E

SUBJECTS' PRE-, POST-, AND DIFFERENCE SCORES ON THE QUESTION MEASURING OPINION CHANGE

COOL RADIO

	Pre	Post	Difference	
	7	5	-2	
	2	5	3	
	5	2	-3	
	6	5	-1	
High	5	5	0	Difference
	1	1	0	Total: -1
	2	2	0	
	2	5	3	
	1	1	0	
	4	3	-1	
	1	5	4	
	6	6	0	
	1	1	0	
	1	7	6	
Medium	0	1	-1	Difference
	2	5	0	Total: 17
	1	3	2	
	2	2	0	
	2	6	4	
	5	0	-5	
	3	2	-1	
	3	1	-2	
	2	2	0	
	2	1	-1	
Low	5	7	2	Difference
	3	4	1	Total: 0
	1	2	1	
	1	1	0	
	2	3	1	
	2	1	-1	

COOL TELEVISION

	Pre	Post	Difference	
	6	5	-1	
	1	6	5	
	3	5	2	
	6	6	0	
High	3	3	0	Difference
	5	5	0	Total: 7
	6	7	1	
	7	7	0	
	5	5	0	
	3	3	0	
	6	2	-4	
	4	0	-4	
	5	6	1	
	3	6	3	
Medium	2	2	0	Difference
	1	2	1	Total: -1
	6	3	-3	
	6	7	1	
	0	2	2	
	3	5	2	
	5	5	0	
	3	5	2	
	1	3	2	
	4	6	2	
Low	2	6	4	Difference
	3	5	2	Total: 12
	7	2	-5	
	2	2	0	
	2	5	3	
	3	5	2	

HOT RADIO

	Pre	Post	Difference	
	7	7	0	
	5	5	0	
	5	7	2	
	5	5	0	
High	2	2	0	Difference
	7	7	0	Total: 1
	1	2	1	
	1	2	1	
	2	2	0	
	5	2	-3	
	3	6	3	
	4	5	1	
	2	1	-1	
	1	3	2	
Medium	5	6	1	Difference
	3	5	2	Total: 14
	2	5	3	
	1	2	1	
	2	3	1	
	1	6	5	
	1	1	0	
	1	3	2	
	1	5	4	
Low	7	7	0	Difference
	5	6	1	Total: 15
	5	5	0	
	5	7	2	
	5	5	0	
	5	6	1	

HOT TELEVISION

	Pre	Post	Difference	
	6	5	-1	
	1	3	2	
	3	2	-1	
	3	2	-1	
High	1	2	1	Difference
	3	6	3	Total: 6
	3	3	0	
	7	7	0	
	1	6	5	
	5	3	-2	
	5	6	1	
	7	2	-5	
	3	6	3	
	6	5	-1	
Medium	1	1	0	Difference
	3	2	-1	Total: -4
	7	5	-2	
	6	7	1	
	1	1	0	
	6	6	0	
	6	7	1	
	6	5	-1	
	3	2	-1	
Low	5	2	-3	Difference
	5	5	0	Total: -2
	3	2	-1	
	2	5	3	
	1	1	0	
	1	1	0	

VITA

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